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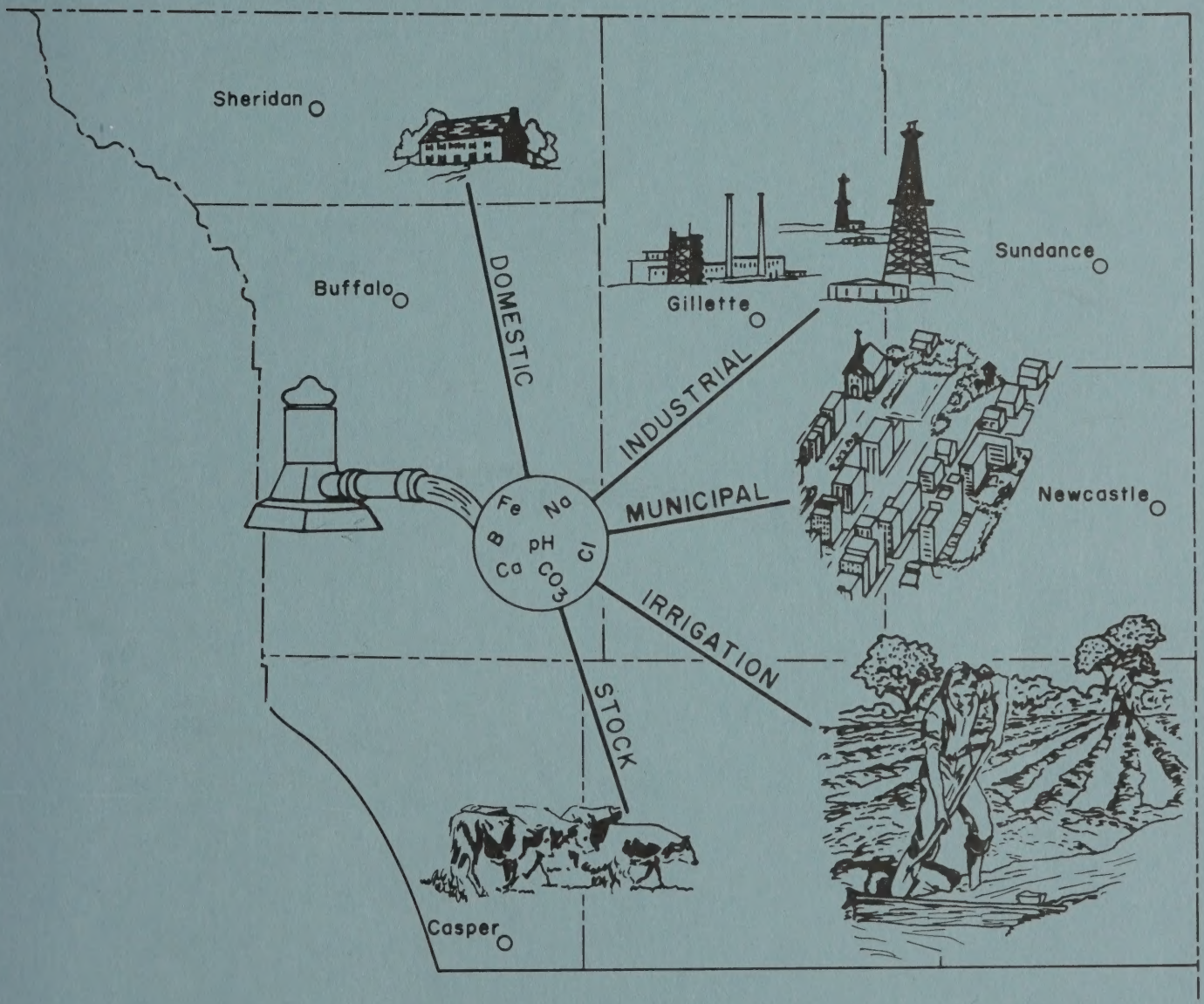

Prepared by
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Water Resources Division

Published by
WYOMING DEPARTMENT OF ECONOMIC PLANNING AND DEVELOPMENT

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UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Water Resources Division

Chemical analyses of ground water in the Powder River Basin and adjacent areas, northeastern Wyoming

by

Warren G. Hodson

A basic-data report

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Publication funds provided by the
WYOMING DEPARTMENT OF ECONOMIC PLANNING AND DEVELOPMENT

1971

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CHEMICAL ANALYSES OF GROUND WATER IN THE POWDER RIVER BASIN AND ADJACENT AREAS, NORTHEASTERN WYOMING

by Warren G. Hodson

INTRODUCTION

This report is intended to serve two purposes: (1) To make more readily available to the public chemical analyses of ground water that were assembled for study during an investigation of the water resources of the Powder River Basin and adjacent areas in northeastern Wyoming and (2) to supplement an interpretive open-file report of the investigation by Hodson, Pearl, and Druse (1971) that will be published separately. The investigation was made during 1967-70 by the U.S. Geological Survey in cooperation with the Wyoming State Engineer. The area consists of about 24,000 square miles and includes Crook, Weston, Campbell, Sheridan, and Johnson Counties, most of Niobrara and Converse Counties, and the northeastern part of Natrona County. The southern boundary of the area is the base of T. 33 N.

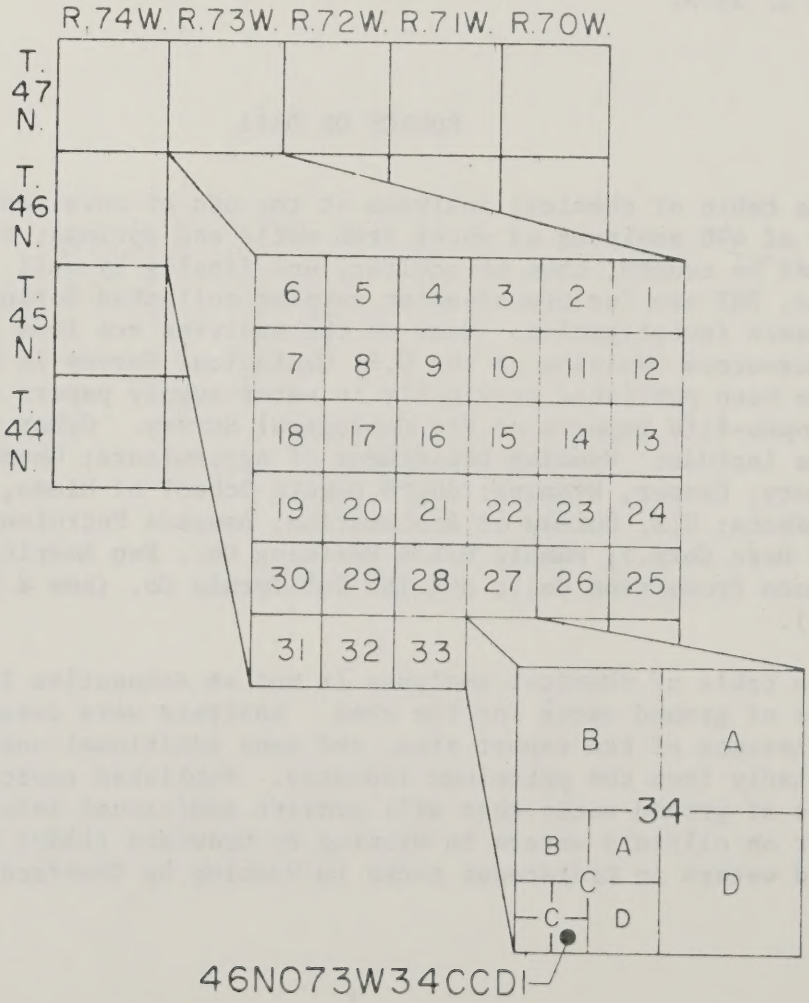
SOURCE OF DATA

The table of chemical analyses at the end of this report contains the results of 490 analyses of water from wells and springs; the analyses are tabulated by county, then by aquifer, and finally by well number. Of the analyses, 202 are for ground-water samples collected during the Powder River Basin investigation. Many of the analyses are from the files of the Water Resources Division of the U.S. Geological Survey in Cheyenne, Wyoming, and have been published previously in water-supply papers or circulars, or are in open-file reports of the Geological Survey. Other sources of analyses include: Wyoming Department of Agriculture; Chemical and Geological Laboratory, Casper, Wyoming; South Dakota School of Mines, Rapid City, South Dakota; U.S. Bureau of Reclamation; Amerada Petroleum Corp. (now Amerada Hess Corp.); Humble Oil & Refining Co.; Pan American Petroleum Corp. (now Amoco Production Co.); and The California Co. (now a part of Chevron Oil Co.).

The table of chemical analyses is not an exhaustive list of available analyses of ground water for the area. Analyses were assembled only for a reconnaissance of the report area, and many additional analyses are available, particularly from the petroleum industry. Published sources of chemical analyses of ground water that will provide additional information include a report on oilfield waters in Wyoming by Crawford (1940) and a report on oilfield waters in Cretaceous rocks in Wyoming by Crawford and Davis (1962).

WELL-NUMBERING SYSTEM

The location of wells and springs for which analyses are given in the table of chemical analyses is designated by a well-numbering system based on the Federal system of land subdivision. The first number denotes the township, the second number denotes the range, and the third number denotes the section. One or more letters follow the section number and denote the location within the section. The section is divided into four quarters (160 acres) and lettered A, B, C, and D in a counterclockwise direction, beginning in the northeast quarter. Similarly, each quarter may be further divided into quarters (40 acres) and again into 10-acre tracts and lettered as before. The first letter following the section number denotes the quarter section, the second letter, if shown, denotes the quarter-quarter section, and the third letter denotes the quarter-quarter-quarter section, or 10-acre tract. For example, in the illustration below, well number 46N073W34CCD1 is in the $SE\frac{1}{4}$ of the $SW\frac{1}{4}$ of the $SW\frac{1}{4}$ of sec. 34, T. 46 N., R. 73 W., and the numeral 1 indicates that it is the first well assigned a number in that quarter-quarter-quarter section.



Consecutive numbers, starting with 1, follow the location numbers within a particular subdivision. Data were obtained and recorded for many wells and springs that were not sampled for chemical analysis of the water; thus, location numbers for sites in a particular subdivision may or may not begin with 1 in this report, depending on the site sampled.

USE OF METRIC UNITS

Methods used in the chemical analysis of water, and units used in expressing the chemical constituents, differ widely not only as to source of analyses but also chronologically. As part of the gradual conversion by the U.S. Geological Survey to the use of metric units of measure, chemical analyses and water temperatures in this report are given in metric, rather than English, units. The concentrations of dissolved constituents are given in milligrams per liter (mg/l), or in micrograms per liter (µg/l), rather than in parts per million. For water containing less than about 7,000 milligrams per liter of dissolved solids, milligrams per liter can be considered equivalent to parts per million. For more highly mineralized waters, a correction for the density of the solution is required to relate the two units, but the required correction is very small for even the most highly mineralized water listed in this report.

For some purposes, constituents expressed as milliequivalents per liter (meq/l) are needed. Milliequivalents per liter may be computed by multiplying the concentration of the constituent, in milligrams per liter, by the reciprocal of its combining weight. The reciprocal factors of the more commonly determined constituents are given below.

Factors for converting milligrams per liter to milliequivalents per liter

Anion	Factor	Cation	Factor
Bicarbonate (HCO_3^-)	0.01639	Calcium (Ca^{++})	0.04990
Carbonate (CO_3^{--})	.03333	Magnesium (Mg^{++})	.08226
Chloride (Cl^-)	.02821	Potassium (K^+)	.02557
Fluoride (F^-)	.05264	Sodium (Na^+)	.04350
Nitrate (NO_3^-)	.01613		
Sulfate (SO_4^{--})	.02082		

Water temperatures are reported in degrees Celsius (°C) rather than in the more familiar degrees Fahrenheit (°F). To convert °C to °F, use the equation °F = 1.8 (°C)+32. The following table can be used as a guide to determine equivalent temperatures for Celsius and Fahrenheit scales:

Temperature-conversion table

Temperatures in °F are rounded to nearest degree; underscored equivalent temperatures are exact equivalents

°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F
-20	-4	-10	14	0	32	10	50	20	68	30	86	40	104
-19	-2	-9	16	+1	34	11	52	21	70	31	88	41	106
-18	0	-8	18	2	36	12	54	22	72	32	90	42	108
-17	+1	-7	19	3	37	13	55	23	73	33	91	43	109
-16	3	-6	21	4	39	14	57	24	75	34	93	44	111
-15	5	-5	23	5	41	15	59	25	77	35	95	45	113
-14	7	-4	25	6	43	16	61	26	79	36	97	46	115
-13	9	-3	27	7	45	17	63	27	81	37	99	47	117
-12	10	-2	28	8	46	18	64	28	82	38	100	48	118
-11	12	-1	30	9	48	19	66	29	84	39	102	49	120

WATER QUALITY IN RELATION TO USE

The quality of a water is judged according to the use for which it is needed. Generally, the lower the dissolved solids, the better the water. For some uses, however, the concentration of particular constituents in a water may be more important than the total concentration of dissolved solids. Principal constituents analyzed, their characteristics, and recommended maximum concentrations for domestic and municipal use are given in table 1.

Chemical properties of water given in the table of chemical analyses included specific conductance, pH, and hardness. The properties are related to the amount of and chemical types of dissolved substances, and aid in understanding the general quality of the water.

Table 1.--Principal constituents analyzed, their characteristics, and recommended maximum concentrations for domestic and municipal use.

Principal constituents	Characteristics	Recommended maximum concentration, in mg/l [1]
Dissolved solids	Residue left after a natural water has evaporated; consists mainly of the mineral constituents but may also include some organic matter and water of crystallization.	500
Iron (Fe)	Dissolved from most rocks and soils, but may also be derived from iron pipes, pumps, and other equipment. When present in excessive amounts, it may stain fabrics, cooking utensils, and plumbing fixtures and produce a precipitate in the water. Such water may have a disagreeable taste.	[2] .3
Fluoride (F)	Dissolved in small to minute quantities from most rocks and soils. Concentrations of about 1 mg/l in drinking water used by children during the calcification of teeth prevents or lessens the incidence of tooth decay; more than about 1.5 mg/l may cause mottling of the teeth enamel (Dean, 1936).	[3] 1.3
Sulfate (SO_4)	Dissolved from rocks and soils containing gypsum, iron sulfides, and other sulfur compounds. Commonly present in mine waters and in some industrial waters. Excessive concentrations of magnesium sulfate (Epsom salt) and sodium sulfate (Glauber's salt) in water will impart a bitter taste and may act as a laxative to people not accustomed to drinking it.	250
Nitrate (NO_3)	Derived from nitrate-bearing rocks and minerals, but high concentrations of nitrate may indicate nitrate derived from plants, nitrate fertilizer, animal waste, or nitrifying action. Concentrations greater than 45 mg/l may cause cyanosis in infants.	45
Chloride (Cl)	Derived from rocks and soils. Large concentrations present in ancient brines, industrial wastes, and sewage. Excessive concentrations increase corrosiveness of water and, in combination with sodium, give a salty taste.	250
Silica (SiO_2)	Derived from most rocks and soils. Forms scale in pipes and boilers. Silica content of most natural waters ranges from about 1 to 30 mg/l.	---

[1] Maximum concentrations as recommended by the U.S. Public Health Service (1962, p. 7-8).

[2] Iron concentration is given in µg/l in table 2; to convert µg/l to mg/l, divide by 1,000.

[3] Based on the annual average of maximum daily air temperature.

Specific conductance, expressed in micromhos per centimeter at 25°C, is a measure of the capacity of the water to conduct an electric current. Specific conductance is related to the amount of and chemical type of dissolved minerals and can be used to estimate the total mineralization (dissolved solids) of the water.

The pH, which is determined by the hydrogen-ion concentration of the water, gives the acidity or alkalinity of a water. A pH progressively higher than seven denotes increasing alkalinity; a pH progressively lower than seven denotes increasing acidity.

Most hardness of water is caused by calcium and magnesium; these constituents form scale during heating or evaporative processes. Hardness is indicated by the amount of soap needed to produce a lather or suds and by an insoluble scum that forms during washing processes. An adjective rating has been established by the U.S. Geological Survey as follows:

Hardness as $CaCO_3$ (mg/l)	Adjective rating
0 - 60	soft
61 - 120	moderately hard
121 - 180	hard
More than 180	very hard

General criteria for evaluating water for common uses are discussed in the following paragraphs. Additional information about the chemical characteristics of water is given by Hem (1970).

Domestic and municipal use

Chemical-quality standards for water used by public carriers and by others subject to Federal quarantine regulations have been established by the U.S. Public Health Service (1962). These regulations concern bacteria, radioactivity, and chemical constituents that may be objectionable in a water supply. Recommended maximum concentrations of some constituents are given in table 1.

Industrial use

Water-quality criteria for industrial use vary considerably depending on the use. Some industries have strict quality requirements. In general, water suitable for domestic and municipal use is suitable for most industrial uses. Criteria for many industrial uses are given in McKee and Wolf (1963, p. 92-106).

Livestock use

The tolerance of animals to the mineral content in water depends on the species, age, and physiological condition of the animal; on the quantity and type of salts in the water; and on the amount of water consumed. Standards for most of these factors have not been determined, however, and general standards based on the concentration of dissolved solids are used. McKee and Wolf (1963, p. 112-113) discuss some criteria that have been used. Beath and others (1953, p. 86) suggest the following classification as a guide for evaluating stock water in Wyoming:

Dissolved solids (mg/l)	Classification
Less than 1,000	good
1,000 to 3,000	fair (usable)
3,000 to 5,000	poor (usable)
5,000 to 7,000	very poor (questionable)
More than 7,000	not advisable

Irrigation use

Significant mineral hazards that affect the suitability of a water for irrigation are the dissolved solids, boron, percent sodium, and sodium content relative to calcium and magnesium content. If the bicarbonate content is high, calcium and magnesium tend to precipitate as carbonates, and the relative proportion of sodium to calcium and magnesium is increased. The effect of sodium and other constituents in irrigation water is discussed in detail by U.S. Department of Agriculture Handbook 60 (U.S. Salinity Lab. Staff, 1954). Before water supplies are developed and used for irrigation, local agricultural agencies should be contacted concerning the suitability of the water in relation to the soil and crops to be irrigated.

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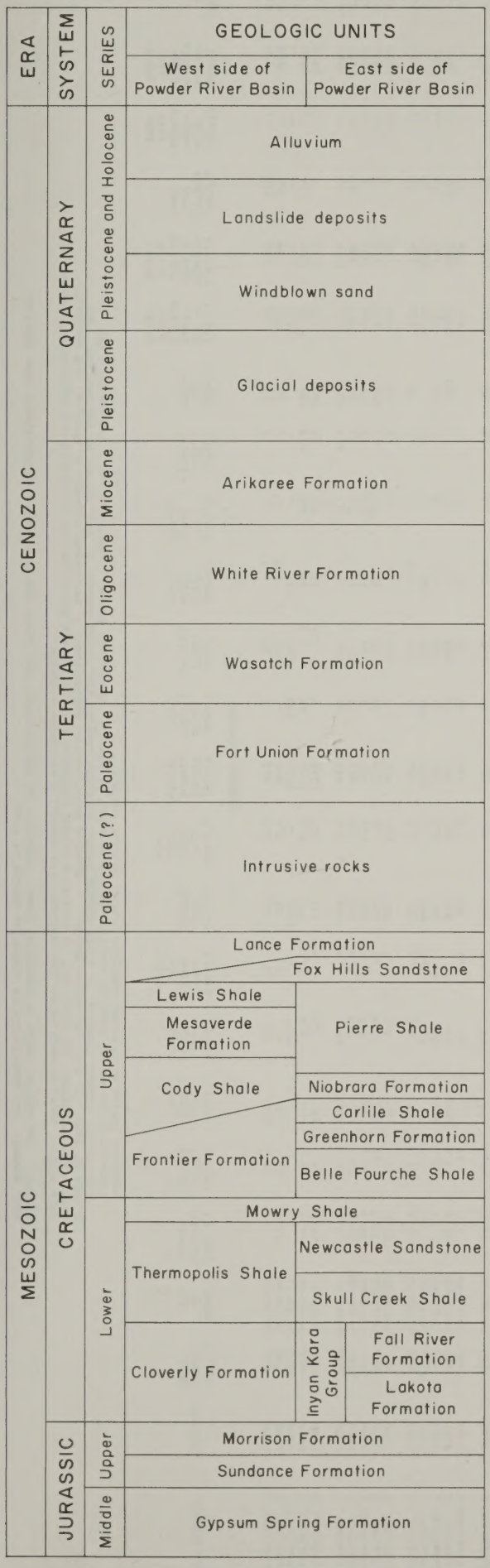
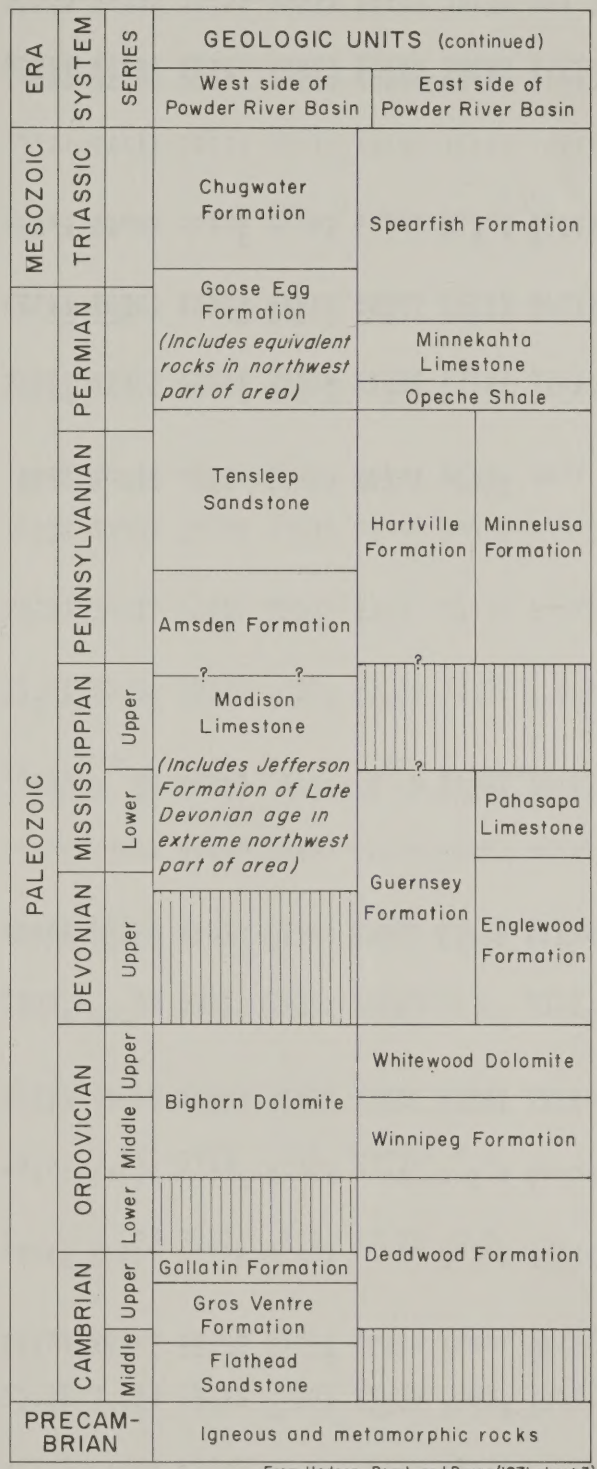
U.S. Salinity Laboratory Staff, 1954, Diagnosis and improvement of saline and alkali soils: U.S. Dept. Agr. Handbook 60, 160 p.

BASIC DATA

Stratigraphic relation of geologic units in the Powder River Basin and adjacent areas, and aquifer codes for the geologic units for which chemical analyses of water are listed in table 2.





From Hodson, Pearl, and Druse (1971, sheet 3)

AQUIFER CODES

Q OA, Alluvium	KIFR, Fall River Formation
QGOG, Glacial deposits	KILA, Lakota Formation
TMAR, Arikaree Formation	J3MO, Morrison Formation
TOWR, White River Formation	J3SD, Sundance Formation
TEWA, Wasatch Formation	J2GS, Gypsum Spring Formation
TLFU, Fort Union Formation	R CH, Chugwater Formation
TLIR, Intrusive rocks	F SP, Spearfish Formation
L3LN, Lance Formation	P MI, Minnekahta Limestone
K3FH, Fox Hills Sandstone	P OP, Opeche Shale
K3LE, Lewis Shale	G TE, Tensleep Sandstone
K3MV, Mesaverde Formation	G ME, Minnelusa Formation
K3PI, Pierre Shale	M MA, Madison Limestone
K3CO, Cody Shale	MIPA, Pahasapa Limestone
K3FR, Frontier Formation	W DE, Deadwood Formation
KIMO, Mowry Shale	C2FL, Flathead Sandstone
KICL, Cloverly Formation	Z OB, Precambrian rocks
KIIK, Inyan Kara Group	

Table 2.--Chemical analyses of water from wells and springs in the Powder River Basin and adjacent areas, northeastern Wyoming

[Analytical results in milligrams per liter (MG/L) or micrograms per liter (UG/L), except as indicated]

WELL NUMBER: See description of numbering system in text.
AQUIFER: See aquifer codes on preceding page. Footnotes at end of table list minor aquifers that also contribute some water to wells.
WELL DEPTH: Depth of well below land surface; the numeral 0 indicates a spring.
SODIUM AND POTASSIUM: An entry of C in potassium column indicates that sodium and potassium are calculated and reported as sodium.
SOURCE OF DATA: 1, U.S. Geological Survey; 4, Wyoming Department of Agriculture; 5, Petroleum company; 6, Chemical and Geological Laboratory, Casper, Wyoming; 7, South Dakota School of Mines, Rapid City, South Dakota; 8, U.S. Bureau of Reclamation. (In computer printouts of chemical analyses of ground water by the U.S. Geological Survey, numerals 2 and 3 are reserved for agencies having no chemical analyses listed in this table.)

WELL NUMBER	AQUIFER	WELL DEPTH (FT.)	DATE OF SAMPLE	TEMPERATURE (DEG C)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	SOURCE OF DATA
CAMPBELL COUNTY																								
57N069W25AAA 1	K3PI	100	08-06-68	--	15	150	35	18	41	3.7	215	7	65	1.7	.5	.7	20	276	294	163	--	490	8.4	1
57N069W26AC 1	K3PI	180	08-06-68	12.0	16	350	81	38	52	7.4	353	--	183	1.9	.2	.4	30	538	554	360	--	866	7.9	1
49N075W32DCC 1	K3FH	6050	08-09-58	--	--	--	19	--	1290	--	1710	132	200	720	--	--	--	3550	3200	--	--	--	8.4	5
50N072W21ACC 2	K3FH	3445	05-31-49	44.0	20	10	5.0	1.0	473	5.2	1180	18	2.0	31	8.0	4.3	260	1160	1150	16	0	1830	--	1
50N072W21ACC 2	K3FH	3445	06-07-67	29.0	19	120	1.6	.2	474	3.0	1160	0	1.4	42	9.4	.1	180	1110	1120	5	0	1800	8.2	1
51N069W20DB 1	K3FH	2250	07-01-68	10.0	8.0	100	18	1.2	390	3.8	557	20	384	3.5	1.8	4.9	120	1120	1110	50	--	1660	8.7	1
53N070W33AD 1	K3FH	2128	07-10-68	21.0	10	160	2.9	7.3	340	1.0	622	21	167	25	7.0	.1	360	904	888	10	--	1450	8.6	1
53N070W34DCC 1	K3FH	2700	07-10-68	16.0	11	120	2.2	.1	370	1.1	534	31	259	37	3.3	.1	540	968	978	6	--	1550	8.6	1
56N071W15DC 1	K3FH	2036	10-16-68	18.0	9.0	180	1.8	.1	330	.6	529	69	130	26	4.5	.0	440	838	832	5	--	1330	8.9	1
57N070W22DD 1	K3FH	600	10-08-68	14.0	11	20	2.0	.7	230	1.0	306	0	256	2.0	.3	.2	60	652	655	8	--	1030	8.1	1
58N069W31CC 1	K3FH	625	10-08-68	12.0	11	40	6.6	.4	231	1.2	306	0	272	2.1	.1	.1	30	670	676	18	--	1040	8.2	1
49N075W32DCC 1	K3LN	5362	08-09-58	--	--	--	13	5.0	997	--	1050	120	600	380	--	--	--	2630	2630	--	--	--	8.5	5
42N069W07BAC 1	TLFU	120	07-08-68	--	7.7	550	32	17	161	7.8	370	13	186	4.4	.4	.9	50	610	613	149	--	951	8.4	1
43N069W19AB 1	TLFU	170	08-07-68	11.0	5.6	490	61	30	385	9.2	300	16	828	4.0	.6	.3	10	1450	1490	276	--	2080	8.5	1
43N072W11BDD 1	TLFU	485	08-11-49	--	--	--	31	6.0	85	C	232	17	50	11	--	--	--	277	314	--	--	--	8.1	6
48N069W35ABD 1	TLFU	170	07-02-68	11.0	7.3	70	15	5.2	410	3.6	544	23	440	6.9	.7	7.3	80	1180	1190	59	--	1780	8.7	1
48N070W17BC 1	TLFU	306	06-20-68	12.0	35	670	367	81	78	6.7	32	0	1360	9.3	.3	.5	50	2040	1950	1250	--	2160	6.8	1
49N075W29CAC 1	TLFU	2111	- -58	--	--	--	15	9.0	510	--	1230	--	118	34	--	--	--	1450	1290	--	--	--	8.0	5
49N075W32DCC 1	TLFU	2822	08-05-58	--	--	--	19	5.0	380	--	781	--	150	70	--	--	--	2070	1010	--	--	--	8.2	5
50N071W27BCA 1	TLFU	540	05-21-49	--	11	50	8.0	4.2	91	2.8	283	0	3.2	7.0	1.0	.2	190	276	270	38	0	471	7.7	1
50N071W27BCA 1	TLFU	540	09-21-54	14.0	1.2	250	4.6	2.1	99	5.0	283	0	1.5	6.2	1.2	--	--	266	271	20	0	437	7.8	1
50N071W27BCB 1	TLFU	540	06-07-67	--	8.5	260	15	5.1	98	3.6	270	0	42	6.4	1.1	.4	100	324	313	59	0	527	7.8	1
50N072W22CAC 1	TLFU	540	05-31-49	--	13	510	50	24	177	7.6	432	0	238	15	1.4	3.4	150	766	745	224	0	1190	7.7	1
51N069W20AD 1	TLFU	206	07-01-68	--	6.9	90	28	3.9	450	4.9	576	22	530	1.5	2.8	9.0	100	1310	1340	86	--	1980	8.7	1
51N071W23CD 1	TLFU	219	06-28-68	12.0	7.7	80	119	65	261	16	519	0	703	8.1	.6	3.5	250	1430	1440	564	--	1990	8.1	1
51N071W29AD 1	TLFU	130	06-28-68	9.0	5.9	340	192	47	62	20	257	0	612	2.6	1.1	.0	960	1100	1070	674	--	1390	7.3	1
51N071W32CDC 1	TLFU	311	06-28-68	14.0	27	600	57	29	320	11	1150	0	.6	9.7	.9	.0	70	994	1020	261	--	1620	7.6	1
51N076W09BC 1	TLFU	1800	10-15-68	15.0	14	60	24	3.2	455	17	1200	15	.2	21	1.1	.7	100	1160	1160	73	--	1790	8.4	1
52N070W02AB 1	TLFU	750	07-01-68	13.0	7.4	70	7.4	.9	300	1.9	582	23	144	6.3	1.8	2.5	150	772	781	22	--	1210	8.8	1
52N070W11CA 1	TLFU	635	06-27-68	12.0	8.4	270	4.8	4.9	325	1.9	654	24	123	10	2.4	.0	180	806	825	32	--	1310	8.7	1
52N070W25DB 1	TLFU	505	07-01-68	12.0	7.9	160	5.1	2.1	360	2.1	521	36	266	6.6	2.6	3.5	70	904	948	21	--	1390	8.8	1
53N070W21DC 1	TLFU	710	06-27-68	14.0	9.2	240	6.7	.4	340	1.9	696	33	89	7.9	2.3	.0	160	824	833	18	--	1320	8.8	1
53N070W26CC 1	TLFU	720	06-27-68	15.0	8.8	120	4.8	2.9	309	1.7	606	24	130	6.6	3.4	.0	160	768	790	24	--	1250	8.7	1
53N071W12DD 1	TLFU	780	06-30-68	13.0	9.4	110	3.4	1.3	320	2.1	664	32	117	5.8	2.3	.0	140	834	820	14	--	1300	8.8	1
53N073W24AC 1	TLFU	173	05-14-68	12.0	7.6	580	379	102	431	17	1350	0	1120	9.3	.7	4.9	30	2700	2740	1370	--	3430	7.5	1
53N076W26AAA 1	TLFU	1043	07-17-68	21.0	15	1400	22	10	440	14	1190	55	.4	13	1.3	.1	110	1160	1160	96	--	1840	8.8	1
54N070W09DCC 1	TLFU	900	07-30-68	16.0	10	60	3.2	.2	285	1.4	556	12	148	4.3	2.8	.1	130	738	740	9	--	1170	8.4	1
54N070W19DC 1	TLFU	335	06-26-68	12.0	8.9	160	11	2.3	385	2.7	556	22	349	5.3	1.1	5.6	60	1040	1070	19	--	1590	8.8	1
54N071W01CD 1	TLFU	270	06-26-68	12.0	8.1	210	9.6	1.0	335	2.1	504	32	281	5.7	1.1	.2	30	916	924	28	--	1410	8.7	1
55N069W35BB 1	TLFU	320	07-30-68	10.0	8.9	1000	145	92	280	9.0	636	8	781	14	.5	.2	120	1670	1650	742	--	2230	8.3	1
55N070W02ACC 1	TLFU	555	07-18-68	14.0	8.2	90	4.0	1.2	340	1.7	518	9	306	5.2	1.6	.1	240	932	932	15	--	1430	8.5	1
55N070W14ADC 1	TLFU	930	07-18-68	13.0	9.9	100	2.6	.1	268	1.0	500	12	151	6.3	2.3	1.2	280	728	701	7	--	1110	8.5	1
55N075W09AC 1	TLFU	1095	06-30-68	12.0	12	460	12	6.8	490	8.0	1260	55	.6	16	1.6	.0	120	1240	1220	58	--	1950	8.7	1
55N075W29BB 1	TLFU	415	10-17-68	11.0	8.2	260	8.9	4.6	264	2.1	760	0	.4	7.6	1.0	.3	70	702	671	41	--	1080	8.1	1
56N070W34BDA 1	TLFU	580	07-18-68	14.0	8.7	60	2.9	.7	300	1.5	514	12	206	6.1	.7	.0	190	790	792	10	--	1230	8.5	1
56N073W29BDB 1	TLFU	179	08-01-68	11.0	11	1000	100	62	330	8.0	592	0	724	6.3	.4	5.0	80	1520	1540	504	--	2100	8.0	1
57N071W14BD 1	TLFU	615	08-06-68	13.0	9.6	150	2.3	.9	254	1.1	468	26	129	5.0	2.3	.2	130	656	661	9	--	1060	8.8	1
57N074W18DAA 1	TLFU	400	08-01-68	13.0	7.1	80	444	319	890	21	729	12	3560	10	.2	.2	330	5340	5620	2420	--	5890	8.3	1
58N071W26DA 1	TLFU	350	09-10-58	13.0	9.0	90	2.8	.4	252	1.7	433	0	183	4.3	2.0	.0	160	662	668	8	--	1080	8.0	1
58N073W24DC 1	TLFU	12	07-31-68	11.0	18	50	268	68	370	52	585	--	1310	4.9	.8	2.4	5400	2330	2380	950	--	2770	8.1	1
42N070W05DDD 1	TFWA	233	07-09-68	12.0	37	1300	414	919	720	6.8	254	0	5940	35	1.0	.2	60	8620	8200	4810	--	7660	8.1	1
42N070W32AA 1	TFWA	280	07-08-68	13.0	8.2	700	66	30	241	7.4	715	15	185	23	.6	.2	30	960	929	289	--	1460	8.4	1
42N071W26BBC 1	TFWA	110	07-15-68	11.0	8.5	170	179	35	310	7.8	197	0	1080	6.8	.1	.1	40	1820	1720	591	--	2290	8.2	1
42N074W06AC 1	TFWA	225	06-29-68	10.0	7.6	80	146	33	112	6.9	210	0	515	16	.9	.1	20	962	941	500	--	1310	--	1
43N070W11DA 1	TFWA	45	08-07-68	11.0	28	30	244	66	83	18	227	0	685	2.8	.9	1.6	--	1450	1440	880	--	1720	8.1	1

Table 2.--Chemical analyses of water from wells and springs in the Powder River Basin and adjacent areas, northeastern Wyoming--Continued

WELL NUMBER	AQUIFER	WELL DEPTH (FT.)	DATE OF SAMPLE	TEMPERATURE (DEG C)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	SOURCE OF DATA
CAMPBELL COUNTY--Continued																								
43N072W11BDD 1	TEWA	160	03-16-49	--	--	--	506	163	83	C	271	0	1300	13	--	--	--	3200	2700	--	--	--	7.3	6
43N072W11BDD 1	TEWA	240	08-05-49	--	--	--	206	65	263	C	145	12	1150	13	--	--	--	1860	1780	--	--	--	9.2	6
43N072W16CC 1	TEWA	345	07-09-68	12.0	17	890	340	100	68	8.6	296	11	1100	2.0	.0	.4	100	1930	1790	1260	--	2130	8.5	1
43N072W18BD 1	TEWA	261	07-09-68	12.0	15	400	202	46	54	7.2	242	3	584	3.0	.1	.1	90	1070	1030	692	--	1360	8.3	1
43N072W21CA 1	TEWA	550	07-09-68	13.0	8.3	210	12	2.7	137	2.3	377	6	1.0	12	.7	.2	70	374	367	41	--	617	8.3	1
44N070W28CBC 1	TEWA	261	08-07-68	11.0	8.9	440	40	9.7	221	5.2	345	10	306	13	1.0	.2	10	792	785	140	--	1180	8.5	1
44N071W10DD 1	TEWA	124	07-08-68	11.0	14	30	299	110	74	7.0	242	0	1080	5.8	.4	1.9	60	1860	1710	1200	--	2040	7.9	1
44N072W15BA 1	TEWA	145	05-10-66	11.0	17	1030	448	157	122	13	340	0	1730	7.1	1.0	.0	310	2860	2660	1760	1480	2960	7.2	1
44N073W35CC 1	TEWA	205	10-14-68	11.0	6.8	30	75	17	238	3.3	118	0	672	3.2	.3	1.1	10	1110	1070	258	--	1520	7.8	1
45N071W02AAA 1	TEWA	155	06-05-68	13.0	7.4	2300	100	26	268	6.3	361	0	630	19	.8	2.0	60	1250	1240	355	--	1740	7.5	1
45N074W17CB 1	TEWA	259	06-29-68	--	7.2	60	136	19	309	5.1	82	0	1000	4.6	.4	.8	20	1550	1520	418	--	2070	7.8	1
45N075W34BB 1	TEWA	160	10-11-68	10.0	15	970	92	36	26	4.1	358	0	135	1.9	.2	.0	10	514	487	376	--	755	7.9	1
46N072W01BCC 1	TEWA	90	07-15-68	11.0	12	8800	594	218	167	14	296	0	2480	19	1.9	1.6	110	3750	3660	2380	--	3600	8.2	1
46N072W27AAC 1	TEWA	125	08-30-68	12.0	8.4	--	55	8.0	176	5.2	268	0	308	12	.5	.1	30	708	705	170	--	1060	8.0	1
46N073W06DDD 1	TEWA	233	07-12-68	13.0	11	320	210	48	160	7.1	308	0	755	5.3	.1	1.6	40	1420	1350	723	--	1740	8.1	1
46N073W34CCD 1	TEWA	200	07-19-68	12.0	8.8	610	130	31	271	4.9	573	0	535	12	.3	1.2	50	1300	1300	450	--	1820	8.1	1
46N074W09CB 1	TEWA	281	10-09-68	--	7.4	40	34	8.5	195	1.9	120	0	410	9.4	.4	.4	10	748	726	120	--	1090	7.9	1
46N075W09BD 1	TEWA	400	10-09-68	12.0	9.4	520	44	11	250	2.6	88	0	604	18	.2	.0	20	984	983	154	--	1400	7.4	1
46N076W10DA 1	TEWA	90	10-09-68	12.0	10	20	198	123	231	4.4	274	0	1160	15	.2	10	120	2090	1890	1000	--	2340	7.9	1
47N072W24CD 1	TEWA	40	06-05-68	11.0	13	5830	482	252	173	12	273	0	2300	50	1.1	.1	130	3620	3420	2240	--	3590	7.4	1
47N073W08DDC 1	TEWA	311	07-12-68	11.0	7.3	80	33	6.2	205	2.9	98	0	457	5.0	.4	.9	20	792	766	108	--	1200	8.3	1
47N075W06DCA 1	TEWA	200	10-10-68	11.0	8.1	30	25	2.6	220	2.4	78	0	461	15	.3	.1	20	784	773	73	--	1200	7.4	1
47N075W13BCC 1	TEWA	355	10-10-68	13.0	10	40	225	74	96	5.1	350	0	720	2.6	.2	.5	30	1380	1310	865	--	1630	7.6	1
47N076W26CD 1	TEWA	300	10-09-68	11.0	6.8	130	61	10	257	2.6	90	0	656	4.7	.4	.1	0	1130	1040	195	--	1580	7.6	1
48N071W11BCC 1	TEWA	180	06-20-68	23.0	8.2	770	53	19	305	8.7	1060	0	1.5	5.5	.9	.1	80	938	924	212	--	1470	8.2	1
48N071W34CB 1	TEWA	114	06-05-68	11.0	14	4860	151	51	307	12	984	0	412	9.7	.9	.9	90	1470	1450	586	--	2020	7.3	1
48N072W13AA 1	TEWA	122	06-17-68	12.0	14	180	300	156	62	8.4	375	0	1110	6.7	1.1	39	150	1970	1880	1390	--	2270	7.7	1
48N073W31AD 1	TEWA	305	07-12-68	11.0	7.8	20	151	31	285	6.0	180	0	948	2.3	.2	4.0	30	1560	1520	504	--	2000	7.9	1
48N075W06BAA 1	TEWA	300	07-11-68	12.0	7.9	140	6.5	1.5	135	1.4	220	0	111	12	.4	.1	20	386	384	22	--	658	8.1	1
49N071W18DCC 1	TEWA	204	05-26-49	--	13	14600	36	19	9.1	3.2	123	0	80	4.0	.5	.8	110	252	227	168	67	--	7.0	1
49N071W29DCA 1	TEWA	263	06-04-68	17.0	9.5	70	24	6.9	213	4.1	437	0	177	4.7	.8	.0	40	636	655	89	--	1010	7.8	1
49N072W04AB 1	TEWA	387	08-07-49	--	8.7	20	58	45	311	11	627	0	476	21	1.2	.2	70	1430	1250	330	0	2030	7.5	1
49N072W05AAB 1	TEWA	120	06-14-49	--	12	11000	365	114	40	9.2	46	0	1370	4.0	.6	4.6	270	2110	1940	1380	1340	2210	7.0	1
49N075W31CCC 1	TEWA	420	07-11-68	14.0	8.6	70	4.6	.4	123	1.2	229	0	68	10	.8	.1	30	336	330	13	--	539	8.1	1
49N075W32DD 1	TEWA	160	07-11-68	11.0	9.2	130	3.4	1.6	100	1.7	235	16	1.2	13	.5	.2	30	266	263	15	--	442	8.4	1
49N076W27AAA 1	TEWA	1000	07-11-68	17.0	9.3	460	8.7	1.6	300	3.3	779	0	7.1	9.9	2.0	.2	110	760	726	28	--	1140	8.1	1
50N071W20ADC 1	TEWA	6	05-23-49	--	30	10	195	112	58	67	304	0	356	8.0	.9	6.9	630	1580	1490	947	698	1890	7.3	1
50N072W08ABB 1	TEWA	380	05-20-49	11.0	12	850	25	14	254	5.6	823	0	2.4	8.0	.8	.2	80	740	734	120	0	1180	7.5	1
50N072W20CAA 1	TEWA	160	05-21-49	--	17	270	85	32	9.1	5.6	249	0	149	4.0	.9	2.4	0	454	430	344	140	667	7.6	1
50N072W21ACC 1	TEWA	210	06-14-49	--	22	3300	341	150	43	14	373	--	1170	7.0	.2	4.7	220	2110	1940	1470	1160	2280	7.6	1
50N072W21ACC 1	TEWA	210	06-07-67	11.0	19	4100	248	127	34	9.9	323	0	911	9.6	.7	.2	110	1650	1520	1140	877	1960	7.1	1
50N072W35BA 1	TEWA	340	05-23-68	11.0	8.5	10	34	19	269	7.3	859	0	13	7.4	.6	.0	100	779	782	164	--	1230	7.7	1
50N072W35DD 1	TEWA	305	05-09-68	11.0	15	6000	448	443	104	10	311	0	2680	2.7	3.2	.0	230	4400	4060	2940	--	4140	7.3	1
50N074W25ACC 1	TEWA	270	07-10-68	--	8.7	90	13	1.3	158	2.3	417	13	1.0	12	.5	.1	60	418	415	38	--	689	8.3	1
50N074W31CB 1	TEWA	290	05-21-68	11.0	7.8	0	50	17	312	3.0	123	0	768	2.4	.7	.6	20	1230	1220	195	--	1740	7.4	1
50N075W30BD 1	TEWA	400	10-15-68	11.0	8.2	20	7.5	2.1	138	1.5	217	0	121	8.6	.8	.3	20	390	395	27	--	635	7.9	1
51N071W22CDC 1	TEWA	0	06-09-49	--	25	10	53	11	14	11	164	0	79	3.0	1.0	7.0	230	286	286	177	43	438	7.7	1
51N071W30AAD 1	TEWA	0	06-08-49	--	25	30	193	56	43	27	192	--	636	3.0	.9	2.5	710	1140	1080	712	555	1380	7.4	1
51N072W22CB 1	TEWA	100	06-06-68	12.0	12	370	79	38	306	10	1120	0	73	1.2	.7	.0	360	1070	1070	354	--	1660	7.5	1
51N072W29BDD 1	TEWA	34	05-20-49	--	19	2200	275	204	144	14	266	0	1480	21	.6	29	200	2560	2320	1530	1310	2690	7.5	1
52N073W25DD 1	TEWA	210	05-14-68	12.0	16	1400	58	13	9.9	1.9	146	0	100	1.5	.9	.1	10	288	273	200	--	437	7.2	1
52N075W17AD 1	TEWA	938	07-17-68	16.0	10	40	10	3.9	198	3.1	530	9	1.0	9.3	.7	.1	30	524	506	41	--	831	8.4	1
52N075W27CBA 1	TEWA	160	07-17-68	11.0	8.2	50	6.0	.5	167	1.8	435	0	1.2	14	1.6	.2	50	432	415	17	--	679	8.2	1
53N074W07BCC 1	TEWA	120	07-16-68	11.0	9.6	2600	440	159	640	15	356	5	2630	4.6	.1	.1	100	4050	4080	1750	--	4190	8.3	1
53N075W04AC 1	1/TEWA	130	08-29-68	--	3.3	20	153	145	660	12	236	0	2070	7.0	.3	9.4	60	3110	3180	978	--	3850	7.8	1
48N069W28DCC 1	Q OA	40	07-02-68	--	13	60	84	23	58	4.7	394	14	74	1.4	.4	.1	80	474	467	303	--	753	8.5	1
53N073W12AB 1	2/Q OA	108	05-14-68	13.0	9.9	990	19	9.1	205	6.1	604	0	7.4	11	.9	.2	40	552	566	86	--	935	7.8	1
54N071W01CD 2	Q OA	37	06-26-68	14.0	8.6	120	25	12	241	3.5	465	24	204	6.8	.8	1.9	60	750	757	112	--	1190	8.7	1
55N072W32CDD 1	Q OA	60	07-31-68	9.0	15	410	35	40	262	18	679	15	258	13	.9	.1	120	984	992	252	--	1520	8.4	1
58N071W25DC 1	Q OA	18	09-24-68	--	25	20	225	129	712	21	688	0	1980	25	.6	.1	240	3560	3460	1090	--	4190	7.9	1

See footnotes at end of table.

Table 2.--Chemical analyses of water from wells and springs in the Powder River Basin and adjacent areas, northeastern Wyoming--Continued

WELL NUMBER	AQUIFER	WELL DEPTH (FT.)	DATE OF SAMPLE	TEMPERATURE (DEG C)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	SOURCE OF DATA
CONVERSE COUNTY																								
34N076W08BC 1	K3MV	3576	09-30-69	33.5	22	80	1.0	1.8	670	2.2	1030	16	515	52	3.1	.1	1400	1780	1790	10	--	2650	8.5	1
33N071W18BDB 1	TLFU	210	08-17-50	18.0	9.9	--	16	7.4	137	4.6	363	0	43	13	1.1	3.2	300	424	414	71	0	685	8.2	1
33N073W23ACA 1	TLFU	100	08-18-50	13.0	13	--	353	98	432	38	432	0	1830	52	.3	.4	200	3130	3030	1280	926	3620	7.7	1
34N068W09CCD 1	TLFU	190	06-04-69	12.0	7.6	60	55	34	224	9.8	220	0	575	1.9	.2	10	40	960	1030	275	--	1380	7.7	1
34N068W12BBD 1	TLFU	650	06-04-69	12.0	9.0	220	2.9	3.6	274	2.7	671	6	28	10	2.6	.2	60	646	669	22	--	1030	8.3	1
34N069W10DD 1	TLFU	206	06-05-69	12.0	6.8	120	151	64	120	10	178	0	725	3.1	.2	.1	0	1250	1170	642	--	1570	8.0	1
34N074W02DD 1	TLFU	165	07-29-69	11.0	18	50	142	17	28	8.6	301	0	178	24	.3	33	80	666	597	423	--	925	8.0	1
34N074W09CC 1	TLFU	206	07-29-69	--	5.4	60	.7	.4	162	.4	269	8	104	3.0	.5	.1	80	422	417	3	--	673	8.7	1
35N070W04BA 1	TLFU	415	06-19-69	14.0	9.2	20	9.8	.4	161	2.0	307	0	100	8.0	1.5	2.7	40	432	446	26	--	708	8.1	1
36N069W24DD 1	TLFU	434	06-05-69	13.0	7.9	110	4.6	3.0	134	2.8	246	2	102	2.2	.8	4.0	20	376	384	24	--	605	8.3	1
36N075W09CC 1	TLFU	360	09-29-69	11.0	27	50	40	11	5.7	3.6	94	0	75	1.6	.5	4.4	20	226	215	144	--	326	6.9	1
37N068W12CB 1	TLFU	200	06-05-69	13.0	7.8	40	32	12	68	7.6	252	0	70	3.4	.7	.1	20	314	326	128	--	538	8.1	1
39N069W33AB 1	TLFU	370	07-02-69	12.0	7.2	--	53	23	360	6.3	399	0	640	12	.6	.2	10	1270	1300	225	--	1860	8.2	1
39N070W29AA 1	TLFU	498	07-02-69	14.0	8.3	40	18	4.6	107	4.2	332	0	7.4	6.0	1.3	.0	50	298	320	64	--	514	7.9	1
39N072W06BD 1	TLFU	1104	06-17-68	19.0	11	30	9.3	.5	94	1.4	167	4	81	2.8	.2	.1	50	284	286	25	--	458	8.4	1
39N072W30CA 1	TLFU	1020	07-03-69	19.0	13	40	9.9	2.8	72	1.9	162	0	56	2.8	.2	.2	50	244	246	36	--	385	7.4	1
40N068W23DD 1	TLFU	433	07-30-69	--	8.7	60	2.5	2.2	152	2.1	400	0	4.0	7.2	1.2	.0	20	388	377	15	--	619	8.2	1
40N072W18ADA 1	TLFU	530	06-17-68	18.0	9.6	80	9.3	.7	124	1.7	176	2	137	4.0	.3	.1	50	364	376	26	--	603	8.3	1
36N070W09CCB 1	TEWA	217	06-03-68	12.0	11	1150	93	29	304	4.0	301	0	745	8.5	.7	.0	50	1330	1340	350	--	1830	7.6	1
36N072W09DD 1	TEWA	212	06-06-69	11.0	11	10	36	8.5	146	2.4	184	0	278	5.0	.3	.0	10	576	577	125	--	877	7.7	1
36N072W29AA 1	TEWA	400	07-22-69	--	--	--	45	7.0	94	6.0	220	--	160	4.0	--	--	--	424	--	--	--	--	6.6	5
36N073W27BA 1	TEWA	180	06-06-69	10.0	15	30	69	15	53	5.7	260	0	136	3.8	.3	6.2	20	410	432	235	--	645	7.7	1
36N074W18CA 1	TEWA	35	07-29-69	--	31	40	82	21	21	1.2	236	0	98	13	.9	26	30	434	410	292	--	627	7.8	1
37N074W14AB 1	TEWA	140	07-02-69	11.0	14	10	50	8.3	21	5.9	195	2	41	2.8	.3	.1	50	232	241	159	--	409	--	1
37N074W35DC 1	TEWA	118	07-03-69	--	14	30	101	29	9.3	4.1	221	0	92	29	.3	86	--	486	474	371	--	743	7.5	1
38N073W17AB 1	TEWA	515	07-02-69	--	12	40	13	3.5	79	2.3	226	0	33	2.2	.2	.0	50	256	256	47	--	417	8.1	1
38N074W13DB 1	TEWA	160	07-02-69	10.0	12	1200	343	81	62	10	352	0	980	14	.3	.0	90	1750	1680	1190	--	2000	7.9	1
39N073W24CAA 1	TEWA	267	- -69	--	20	--	252	49	53	10	223	0	715	9.0	.2	.0	50	1270	1220	830	--	1540	7.9	1
40N073W07BBC 1	TEWA	537	07-03-69	--	11	30	12	5.1	126	1.5	198	0	140	5.0	.3	.2	50	402	398	51	--	624	7.5	1
40N073W08CD 1	TEWA	310	07-03-69	13.0	12	20	30	4.1	165	2.1	189	0	277	3.5	.2	.2	40	586	587	92	--	901	7.8	1
40N074W21AC 1	TEWA	30	07-03-69	13.0	10	30	100	22	7.7	4.3	295	0	102	1.5	.3	.2	10	384	393	338	--	628	7.5	1
33N073W25BAB 1	TOWR	0	08-17-50	11.0	72	--	20	.5	216	9.4	478	0	105	29	.8	2.8	200	718	691	52	0	1030	7.8	1
33N073W27DDB 1	TOWR	92	08-17-50	10.0	64	--	25	1.0	309	16	616	0	205	32	.7	18	450	1030	974	67	0	1450	8.1	1
33N073W27DCC 1	TOWR	30	08-17-50	11.0	64	--	263	57	1060	42	464	0	2650	26	1.0	33	1200	4520	4430	892	512	5450	7.8	1
33N073W27DCD 1	TOWR	160	08-17-50	12.0	59	--	157	13	1130	46	343	0	2500	41	.6	83	820	4240	4200	447	166	5200	7.2	1
33N073W34BCC 1	TOWR	8	08-17-50	13.0	43	--	305	49	995	37	388	0	2750	30	1.1	19	1300	4530	4400	960	642	5350	7.8	1
33N072W07DBC 1	Q OA	12	08-17-50	12.0	17	--	139	33	332	8.6	510	0	700	31	.6	2.3	420	1530	1510	482	64	2120	7.6	1
CROOK COUNTY																								
52N061W24AAC 1	M1PA	0	12-20-63	--	13	--	140	29	2.0	1.9	274	0	228	3.1	.0	1.9	0	--	588	468	243	911	7.7	4
53N065W18BBD 2	M1PA	1341	07-11-62	--	12	260	112	43	4.0	1.0	264	--	275	1.5	.5	.0	--	600	--	460	244	--	7.2	7
53N065W18BBD 2	M1PA	1341	04-28-70	15.0	9.7	100	112	35	3.3	1.5	261	0	210	3.4	12	2.0	20	526	504	424	--	788	7.9	1
49N063W05DA 1	G ME	1450	09-15-69	12.0	13	60	615	86	5.2	2.4	234	0	1600	.9	.9	1.9	70	2680	2440	1890	--	2640	7.5	1
52N062W02CA 1	G ME	445	09-13-69	10.0	7.6	170	50	26	3.5	1.7	284	0	5.8	2.2	.4	.0	40	236	237	234	--	426	8.0	1
51N063W09DB 1	G ME	400	09-15-69	10.0	10	20	139	34	2.4	1.5	498	0	68	2.9	.2	.6	20	506	504	485	--	834	7.8	1
52N062W12BC 1	G ME	812	09-16-69	--	14	20	273	82	5.1	2.2	248	0	795	.9	.7	.8	50	1380	1300	1020	--	1590	7.9	1
52N062W26DB 1	G ME	620	06-08-67	9.0	7.5	50	213	65	4.5	2.4	156	0	625	4.6	1.2	.7	70	1110	1000	797	669	1300	7.7	1
52N063W25DC 1	G ME	530	05-31-63	--	11	70	65	16	1.3	C	206	0	20	.5	--	--	--	230	--	322	--	--	6.8	7
52N063W25DC 1	G ME	530	06-08-67	--	12	30	66	14	2.4	.9	239	0	25	4.6	.3	1.4	90	256	245	220	24	424	7.5	1
52N063W25DC 1	G ME	530	06-25-68	8.0	11	30	54	17	2.7	1.5	233	7	7.9	.2	.3	.0	20	218	217	204	--	382	8.5	1
53N061W26DAB 1	G ME	852	06-08-67	--	10	60	112	45	3.1	1.6	214	0	276	6.0	.7	.9	50	598	560	466	291	834	7.5	1
53N065W17BA 1	G ME	675	04- -60	--	--	--	251	93	42	--	675	--	1040	24	--	--	--	1690	--	988	--	--	6.7	7
53N065W17BA 1	G ME	675	06-06-67	--	6.0	14200	237	105	38	9.6	211	0	877	27	2.9	.2	100	1530	1420	1020	849	1820	7.3	1
53N065W18BAC 1	G ME	608	06- -56	--	--	550	255	124	--	--	351	--	820	40	--	--	--	1880	--	1150	860	--	7.0	4
53N065W18BAC 1	G ME	608	10- -59	--	--	--	281	119	32	--	510	--	986	11	--	--	--	1750	--	1170	--	--	6.9	7
53N065W18BBD 2	G ME	900	10-27-61	--	12	160	440	156	119	17	268	--	1550	39	--	.6	--	2780	--	1690	1470	--	7.5	7
54N064W07BC 1	G ME	663	10-02-56	13.0	12	490	113	36	4.1	2.2	280	0	203	1.0	1.8	.1	50	551	512	431	201	794	7.5	1
54N064W07BC 1	G ME	663	04-09-58	12.0	13	1300	112	33	3.9	1.8	289	0	180	1.0	1.8	.0	--	487	488	415	178	747	7.4	1
54N064W07BC 1	G ME	663	06-04-68	13.0	11	360	107	36	3.2	2.3	286	0	180	1.7	2.0	.0	20	504	485	415	--	730	7.7	1

Table 2.--Chemical analyses of water from wells and springs in the Powder River Basin and adjacent areas, northeastern Wyoming--Continued

WELL NUMBER		AQUIFER	WELL DEPTH (FT.)	DATE OF SAMPLE	TEMPERATURE (DEG C)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	SOURCE OF DATA
CROOK COUNTY--Continued																									
54N065W13BD	1	G ME	640	07- -59	--	--	--	65	43	62	--	293	--	212	8.0	--	--	--	534	--	--	--	--	7.9	5
54N065W29DD	1	G ME	792	04- -59	--	--	--	118	42	5.0	--	281	--	276	4.0	--	--	--	622	--	455	--	--	7.0	7
52N060W05CA	1	P OP	65	09-16-69	14.0	17	30	136	35	4.9	2.0	296	0	235	2.2	.4	3.0	120	602	582	484	--	855	7.8	1
49N062W22DC	1	P MI	150	09-15-69	--	13	30	148	37	4.0	2.4	295	0	261	3.2	.4	7.5	210	650	622	522	--	904	8.0	1
53N065W18BBD	2	3/P MI	545	09-15-61	--	9.0	0	289	120	52	12	247	0	1050	38	2.2	.0	150	1800	1690	1210	1010	2250	7.1	1
53N061W05AD	1	F SP	143	06-08-67	--	10	50	66	43	13	9.2	312	0	84	13	.6	15	100	414	408	342	85	674	7.5	1
53N065W07DDA	1	F SP	52	10- -59	--	--	--	392	91	93	--	400	--	1190	3.0	--	--	--	2240	--	1310	--	--	7.0	7
53N065W07DDA	1	F SP	52	06-06-67	11.0	15	1400	469	77	120	8.5	283	0	1400	22	1.0	.7	390	2420	2250	1480	1250	2540	7.2	1
53N055W07DDA	1	F SP	52	06-06-67	11.0	15	1400	469	77	120	8.5	283	0	1400	22	1.0	.7	390	2420	2250	1480	1250	2540	7.2	1
53N065W18BBD	1	F SP	63	10- -59	--	--	--	550	162	83	--	409	--	1800	11	--	--	--	3210	--	1970	--	--	6.8	7
53N065W18BBD	2	F SP	460	09-09-61	--	13	60	558	116	261	24	281	0	2110	13	.5	.0	1100	3420	3230	1870	1640	3380	6.7	1
55N064W21CD	1	F SP	150	08-16-56	11.0	36	1900	518	94	59	7.0	304	0	1490	13	.9	3.7	470	2590	2370	1680	1430	2620	7.7	1
54N065W11AB	1	4/J2GS	52	08-16-56	9.0	24	360	318	130	129	13	310	0	1310	7.0	1.3	1.0	310	2310	2090	1330	1080	2500	7.7	1
51N066W27BD	1	J3SD	690	04- -48	--	--	1200	35	14	524	--	381	0	927	9.6	.3	--	--	1700	--	145	--	2320	7.7	8
56N063W15AD	1	J3SD	60	10-02-56	12.0	11	360	37	19	222	7.2	231	0	475	3.0	.3	.4	220	894	889	169	0	1330	8.0	1
56N063W07BD	1	J3MD	300	08-16-56	11.0	9.2	320	23	10	276	8.7	250	0	460	6.0	.8	.7	1800	933	920	100	0	1400	8.2	1
55N061W08DC	1	K1IK	315	08-16-56	14.0	8.0	2000	113	49	70	15	356	0	350	5.0	.2	.1	70	822	787	484	192	1160	7.3	1
56N062W28BB	1	K1IK	333	08-16-56	11.0	9.0	230	38	16	68	9.2	258	0	105	2.0	.3	.1	180	377	375	162	0	624	8.0	1
56N065W11CA	1	K1IK	125	10-28-56	--	9.6	740	58	21	486	10	339	0	1020	7.0	.4	.0	270	1820	1780	231	0	2530	7.6	1
57N064W03DB	1	K1IK	390	10-30-56	13.0	8.8	870	39	15	206	12	385	0	305	5.0	.4	.0	210	794	782	159	0	1200	7.7	1
58N064W35AC	1	K1IK	280	10-30-56	--	8.2	5500	74	32	232	19	356	0	545	8.0	.4	.0	270	1120	1100	318	26	1600	7.6	1
50N067W31DD	2	K3LN	406	10-02-56	12.0	9.3	20	6.0	3.2	440	1.6	722	0	365	4.0	.0	2.4	190	1210	1190	28	0	1830	8.1	1
50N067W31DD	2	K3LN	406	06-04-68	11.0	9.2	80	5.8	1.7	365	1.9	705	0	212	1.7	.2	.2	150	924	945	22	--	1430	8.0	1
50N068W14CD	1	K3LN	97	08-16-56	10.0	6.7	690	11	6.2	315	3.6	550	0	275	10	.8	.1	230	922	900	53	0	1440	8.2	1
52N063W29BA	1	TLIR	0	09-11-69	15.0	18	30	13	1.8	3.5	1.3	46	0	8.2	.7	.3	2.4	10	58	72	40	--	105	6.6	1
49N068W29BC	1	TLFU	155	08-16-56	11.0	7.4	180	10	4.6	400	3.3	480	0	510	8.5	1.6	4.2	180	1200	1190	44	0	1810	8.2	1
49N068W29BC	1	TLFU	155	06-18-68	12.0	7.2	90	16	5.4	440	3.0	488	8	562	7.1	1.7	2.5	110	1270	1290	62	--	1890	8.4	1
50N067W04CC	1	Q OA	39	10-02-56	9.0	19	11000	52	19	281	7.1	648	0	295	9.0	.4	.3	330	1020	1010	206	0	1640	7.8	1
53N067W08CC	1	Q OA	60	11-05-56	--	14	360	70	37	332	5.6	733	0	450	7.5	.4	.8	280	1310	1280	326	0	1890	7.7	1
54N065W13BA	1	Q OA	38	10-18-56	9.0	19	3000	365	73	27	6.8	305	0	970	3.5	.5	.0	260	1770	1620	1210	960	1940	7.2	1
55N064W32CB	1	Q OA	32	08-16-56	9.0	19	210	260	60	69	6.2	256	0	815	4.5	.4	.1	210	1450	1360	895	685	1720	7.6	1
55N064W32CB	1	Q OA	32	06-06-67	12.0	16	210	317	66	101	6.7	251	0	994	12	.9	1.6	140	1740	1640	1060	856	1920	7.5	1
57N065W22CA	2	Q OA	80	10-03-56	11.0	3.9	1300	34	28	970	17	391	0	1950	6.0	.6	.1	950	3340	3200	200	--	4450	8.2	1
JOHNSON COUNTY																									
50N084W10DA	1	Z OB	0	10-27-60	3.0	17	50	9.6	2.4	3.6	1.2	47	0	5.3	.0	.1	.7	10	63	63	34	0	92	7.0	1
41N081W09CD	1	M MA	2882	12-29-65	--	--	--	178	60	260	18	207	0	593	350	--	--	--	1560	1560	--	--	--	--	6
42N084W25CC	1	G TE	800	08-19-69	10.0	8.8	40	44	26	4.6	1.5	241	0	21	3.3	.4	3.0	10	224	231	215	--	414	8.0	1
43N082W15BC	1	5/G TE	1925	08-19-50	28.0	14	160	430	129	1830	29	116	0	1600	2830	1.6	2.7	300	7010	6820	1600	1510	9970	6.7	1
43N082W15BC	1	5/G TE	1925	08-14-69	28.0	14	130	456	161	2220	34	130	0	1560	3420	2.5	--	1200	8260	7930	1700	--	12200	7.8	1
43N083W05CC	1	G TE	0	08-20-69	11.0	9.8	140	52	31	7.8	2.4	240	0	63	7.5	.4	3.3	40	320	295	257	--	493	8.1	1
43N084W04ADD	1	G TE	750	08-18-69	11.0	9.4	50	50	24	3.3	2.0	244	0	28	1.3	.3	.0	10	258	238	224	--	430	8.2	1
43N084W26CBB	1	G TE	761	08-31-65	13.0	10	0	38	31	2.8	1.2	281	0	1.6	6.0	.2	2.5	20	192	231	225	0	407	8.0	1
43N084W35CC	1	G TE	740	08-19-50	16.0	11	30	49	25	4.0	1.0	256	0	21	2.3	.1	1.6	100	240	241	227	17	408	7.7	1
44N083W08BB	1	G TE	400	08-13-69	10.0	8.7	30	40	42	2.4	1.2	319	6	5.6	1.2	.1	1.7	10	252	--	275	266	485	8.4	1
45N083W07AB	1	G TE	0	08-12-69	--	12	70	43	26	3.7	1.9	234	0	26	1.0	.1	1.1	10	226	230	213	--	419	8.2	1
45N083W18DCD	1	G TE	260	08-12-69	10.0	13	40	38	37	3.5	1.5	274	0	12	13	.4	6.6	30	232	260	246	--	457	7.9	1
46N083W03BD	1	G TE	0	10-24-60	8.0	7.8	40	43	30	1.1	.8	279	0	5.3	.2	.1	.9	20	223	226	231	2	411	7.7	1
46N083W22DDB	1	5/G TE	258	04-21-61	--	--	1100	135	60	70	2.8	343	0	415	13	--	.0	130	956	--	585	303	1260	7.5	4
49N083W27DC	1	G TE	245	07-31-62	8.0	9.5	20	35	41	3.0	1.5	302	0	13	3.0	.2	--	--	255	--	256	8	477	8.0	1
44N083W04BJ	1	R CH	185	08-13-69	10.0	26	10	508	93	15	2.5	170	0	1460	7.7	.6	3.7	170	2410	2200	1650	--	2380	7.8	1
43N083W18BC	1	J3SD	365	08-19-50	13.0	1.7	5000	111	18	1150	17	8	0	2750	18	1.4	4.8	--	4100	4080	349	342	4970	5.6	1
41N080W30BD	1	K1CL	1292	10-13-65	--	12	20	5.6	4.0	1180	12	1270	0	.0	1080	2.2	.0	3600	2790	2920	30	0	4850	8.2	1
41N081W25AD	1	K1CL	1016	08-15-69	17.0	12	30	3.4	3.3	1260	3.9	2450	0	341	278	2.7	.0	3800	2970	3110	21	--	4510	8.2	1
42N082W14CAD	1	K1CL	640	08-20-69	15.5	12	110	1.7	1.9	615	2.0	654	12	565	117	3.2	.0	780	1670	1650	12	--	2490	8.5	1
41N080W22AC	1	K3FR	1150	10-02-65	17.0	9.7	0	.0	.0	550	5.4	1100	93	13	122	1.2	.0	620	1300	1340	0	0	2170	8.9	1
42N083W21B	1	K3FR	0	11-19-46	6.0	--	--	110	32	124	C	338	0	369	9.0	.8	1.2	--	--	812	406	129	1180	--	1
42N081W25B	1	K3FR	375	11-19-46	12.0	15	1800	79	64	197	--	396	0	528	9.2	.7	.2	--	--	1090	460	--	1550	7.6	1
43N082W21DC	1	K3FR	329	08-14-69	17.0	7.4	240	1.4	1.1	415	4.7	459	20	446	14	5.5	.1	1800	1150	1140	8	--	1750	8.8	1
46N083W13CA	1	K3FR	70	10-24-60	13.0	29	2900	177	70	299	6.2	175	0	1250	4.4	1.5	.4	580	2020	1920	731	587	2430	7.1	1

See footnotes at end of table.

Table 2.--Chemical analyses of water from wells and springs in the Powder River Basin and adjacent areas, northeastern Wyoming--Continued

WELL NUMBER		AQUIFER	WELL DEPTH (FT.)	DATE OF SAMPLE	TEMPERATURE (DEG C)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	SOURCE OF DATA
JOHNSON COUNTY--Continued																									
43N081W05B	1	K3CO	285	11-19-46	8.0	--	--	77	99	30	C	204	0	465	8.0	--	1.0	--	--	780	599	432	1130	--	1
50N083W36AA	1	K3CO	270	04-25-61	9.0	--	--	298	573	2350	17	500	0	7830	227	--	1.6	2000	12580	--	3100	2690	12980	8.0	4
43N081W10CA	1	K3MV	400	08-19-50	11.0	7.1	12000	55	8.9	692	2.2	220	0	1430	36	.3	2.5	--	2340	2340	174	0	3120	7.8	1
46N082W09AD	1	K3MV	150	05-24-61	9.0	11	220	62	14	366	3.3	359	0	690	12	.3	4.3	480	1360	1340	212	0	1930	8.1	1
43N080W20CC	1	6/K3FH	140	08-19-50	11.0	13	2400	318	116	780	8.0	436	0	2320	157	.4	.2	100	4060	3930	1270	912	4570	7.4	1
41N077W05CCB	1	K3LN	750	09-05-69	10.0	10	1200	63	31	256	3.6	596	0	312	9.3	.3	.4	200	972	980	285	--	1440	8.1	1
42N078W15CAB	1	K3LN	630	08-12-69	20.0	4.4	100	12	9.5	480	3.8	314	10	770	5.0	.9	.2	290	1420	1450	69	--	2110	8.7	1
42N078W23BAD	1	K3LN	1950	08-12-69	22.0	9.8	110	1.0	1.3	312	1.3	593	21	112	16	3.9	.1	520	754	769	8	--	1220	8.8	1
43N081W01CBA	1	K3LN	300	08-20-69	14.0	9.1	--	152	49	39	10	160	0	525	3.1	.4	.0	180	910	867	581	--	1160	7.9	1
44N081W05CA	1	K3LN	60	08-14-69	--	15	60	97	29	14	4.5	346	0	94	4.4	.5	16	150	440	445	361	--	704	7.8	1
45N079W20BD	1	K3LN	4760	08-19-69	42.0	18	150	8.5	3.6	188	4.7	325	4	141	16	1.8	.0	210	548	546	36	--	854	8.4	1
45N081W18DC	1	K3LN	200	08-19-69	10.0	12	50	59	14	8.5	2.4	230	0	33	1.6	.5	6.8	70	244	251	205	--	412	8.1	1
48N082W09AD	1	K3LN	186	10-19-61	10.5	12	5100	481	125	191	5.6	278	0	1780	64	.1	.5	140	3060	2800	1710	1480	3160	7.0	1
51N083W04BC	1	K3LN	205	08-31-61	14.0	15	6300	389	134	172	4.2	464	0	1430	7.4	.3	.0	160	2650	2380	1520	1140	2800	7.7	1
42N078W06DAC	1	TLFU	230	08-20-69	12.0	18	1300	93	44	13	6.8	412	0	102	1.5	.3	.0	130	498	483	412	--	770	8.1	1
42N078W14DBD	1	TLFU	358	08-22-69	--	13	670	61	26	350	4.1	428	0	630	3.8	.3	2.6	290	1300	1300	258	--	1840	8.2	1
45N078W34BA	1	TLFU	473	09-22-50	13.0	9.7	30	4.0	.6	141	1.1	238	10	90	8.5	.8	.2	--	384	383	13	0	500	8.6	1
46N082W14AD	1	TLFU	205	10-30-62	9.0	--	19000	600	198	39	--	484	0	1870	8.0	--	--	--	3250	--	2310	1910	3150	7.5	1
47N082W13DB	1	TLFU	323	10-20-61	9.0	6.8	8800	325	110	358	11	134	0	1800	63	.1	4.4	160	2950	2740	1260	1150	3270	7.0	1
48N077W25DB	1	TLFU	605	10-27-60	13.0	9.8	260	5.7	.5	216	2.1	566	0	16	10	1.4	.0	70	544	540	16	0	879	7.6	1
48N082W11BB	1	TLFU	420	10-29-62	--	--	60	78	31	236	--	271	0	568	22	--	--	--	1090	--	323	101	1560	8.1	1
49N077W21BA	1	TLFU	600	10-27-60	13.0	11	560	5.6	1.9	256	2.1	591	50	2.3	11	1.6	.4	90	635	633	22	0	1030	8.8	1
50N077W29DC	1	TLFU	575	07-31-62	16.0	9.8	240	6.4	.2	333	2.4	828	24	4.6	14	3.6	--	--	794	804	17	0	1300	8.3	1
51N077W20CA	1	TLFU	580	10-27-60	12.0	9.3	180	4.6	1.1	213	2.8	571	0	2.0	13	1.3	.0	60	529	528	16	0	860	7.9	1
51N077W20CC	1	TLFU	758	10-31-61	16.0	10	180	7.0	2.6	410	4.5	1120	0	.3	13	3.1	.0	140	1020	1000	28	0	1600	8.0	1
52N077W03AB	1	TLFU	828	10-26-60	17.0	11	450	14	3.4	500	4.6	1350	0	1.5	23	.6	.0	70	1250	1220	49	0	1900	8.0	1
42N077W24CAB	1	TEWA	530	08-22-69	14.0	10	210	10	2.2	119	2.6	200	1	110	4.4	.6	.0	70	360	358	34	--	579	8.4	1
43N077W34BCB	1	TEWA	655	09-04-69	14.0	9.5	110	4.6	1.8	121	1.7	211	0	96	.8	.6	.0	180	336	340	19	--	533	8.2	1
43N079W02DD	1	TEWA	270	09- -50	11.0	2.5	140	2.5	3.0	257	3.2	152	60	330	23	1.4	.2	100	760	758	19	0	1180	9.6	1
43N079W09DAC	1	TEWA	85	08-13-69	13.0	19	720	84	27	422	6.8	300	0	940	10	.7	1.7	110	1650	1660	320	--	2280	7.9	1
44N076W08CDC	1	TEWA	760	09-04-69	12.5	9.0	30	8.0	1.4	141	1.5	141	0	201	1.6	.2	.0	80	420	--	26	--	664	8.2	1
44N078W24ACA	1	TEWA	265	09-03-69	13.0	7.7	160	17	4.5	246	3.2	164	0	413	7.5	.7	.0	140	774	781	61	--	1160	8.1	1
44N079W20DAC	1	TEWA	103	08-21-69	12.0	9.6	1400	53	19	182	5.2	426	3	232	4.4	.3	1.1	120	720	720	209	--	1080	8.4	1
45N078W14CD	1	TEWA	70	09-22-50	14.0	7.1	670	7.5	2.7	186	1.5	434	8	8.0	42	1.1	1.0	--	488	479	30	0	783	8.3	1
45N078W14CDD	2	TEWA	480	08-15-69	16.0	9.6	180	1.3	2.2	112	1.5	191	0	92	5.8	1.0	.0	40	296	320	12	--	504	8.2	1
45N080W01DAC	1	TEWA	141	08-14-69	12.0	7.3	500	60	16	459	1.5	174	0	1040	18	.5	3.8	110	1760	1690	215	--	2530	8.0	1
46N077W31BA	1	TEWA	203	05-23-61	--	9.6	150	4.2	.4	121	1.2	117	6	149	10	.5	.0	100	364	359	12	0	583	8.3	1
46N080W19AB	1	TEWA	225	10-24-61	9.0	7.4	110	52	14	330	4.0	196	0	690	33	.4	3.8	70	1260	1230	188	27	1800	7.3	1
46N080W20BB	1	TEWA	370	10-24-61	9.0	7.4	70	118	35	510	5.4	185	0	1360	22	.2	3.6	60	2190	2150	438	286	2840	7.1	1
49N081W33BB	1	TEWA	255	10-20-61	11.5	10	720	117	44	141	5.4	169	0	593	12	.1	3.6	90	1070	1010	474	335	1400	7.0	1
49N082W02BB	1	TEWA	318	10-20-61	9.0	12	1600	75	40	36	5.0	349	0	139	4.5	.0	2.8	100	486	486	351	65	779	7.5	1
50N079W19BC	1	TEWA	600	10-27-60	9.0	12	420	156	45	181	3.2	443	0	569	19	.3	4.8	90	1260	1210	573	210	1670	7.5	1
50N082W11CB	1	TEWA	460	10-19-61	11.0	15	2700	183	48	175	4.3	277	0	780	7.3	.1	5.6	210	1340	1350	652	421	1710	7.3	1
51N079W16BA	1	TEWA	164	10-26-60	10.0	8.7	190	27	11	202	2.9	453	0	183	10	.6	.0	90	672	668	113	0	1060	7.7	1
51N082W26BB	1	TEWA	135	02-06-67	--	18	290	27	4.0	391	2.8	1160	0	.6	4.6	.3	.2	20	1050	1020	84	0	1610	8.0	1
51N082W26BB	2	TEWA	60	02-15-67	--	20	--	119	25	159	2.2	784	0	97	4.4	.0	.9	20	818	814	398	0	1250	8.1	1
51N082W33DD	1	TEWA	145	10-27-60	9.0	13	720	76	10	296	1.9	479	0	484	7.8	.1	1.4	80	1170	1130	232	0	1650	8.0	1
52N079W12CC	1	TEWA	160	10-26-60	9.0	7.9	200	5.1	2.3	235	1.6	638	0	1.3	12	1.3	.0	120	598	581	22	0	960	7.6	1
52N082W13DB	1	TEWA	246	10-23-61	9.0	13	13000	321	313	660	25	477	0	3020	19	.3	16	530	4920	4620	2090	1700	5060	6.8	1
52N083W22CA	1	TEWA	510	10-20-61	10.0	9.3	1600	100	51	61	6.4	399	0	243	6.2	.2	6.2	100	687	679	461	134	1140	7.5	1
53N082W33BB	1	TEWA	60	10-23-61	9.0	15	870	93	59	104	8.5	488	0	284	4.5	.4	5.5	150	812	814	474	74	1290	7.5	1
53N086W27CD	1	QGOG	0	10-28-60	3.0	21	220	10	3.2	4.7	1.0	58	0	3.3	.0	.0	.1	10	82	72	38	0	99	6.7	1
43N079W11DD	1	Q QA	12	09-22-50	12.0	14	140	395	197	355	13	385	0	1820	207	.5	133	200	3470	3320	1790	1470	3780	7.4	1
43N080W20CC	2	Q QA	16	08-19-50	10.0	14	1500	137	69	218	7.5	330	0	668	119	.4	2.6	100	1440	1400	627	356	1880	7.4	1
43N082W12A	1	Q QA	20	11-18-46	14.0	11	7200	324	101	365	C	455	0	1250	242	.0	2.0	--	--	2530	1220	851	3270	7.4	1
43N082W12AA	1	Q QA	24	08-19-50	--	13	7000	395	197	610	6.8	565	0	2280	215	.4	2.3	200	4250	4000	1790	1330	4500	7.1	1
43N082W12AD	5	Q QA	17	09-22-50	14.0	12	610	171	58	149	6.4	274	0	608	106	.4	.9	100	1300	1250	667	442	1670	7.4	1
43N082W12B	1	Q QA	12	11-21-46	4.0	11	90	116	40	68	C	212	0	326	62	.2	1.0	--	--	729	454	240	1090	7.8	1
43N082W29AC	1	Q QA	18	08-19-50	8.0	14	240	305	146	895	4.0	693	0	2540	70	1.2	3.3	300	4490	4320	1360	792	4970	7.5	1
44N082W17DD	1	Q QA	12	08-12-69	--	13	50	280	95	200	3.8	373	0	712	58	.3	.1	140	1610	1550	1090	--	2330	8.1	1
45N078W33AD	1	Q QA	22	09-22-50	13.0	13	--	463	137	495	8.8	418	0	1890	177	.6	54	100	3600	3380	1570	1230	3920	7.4	1
49N077W20DA	1	Q QA	31	10-27-60	12.0	11	5000	302	87	287	8.5	271	0	1220	194	.4	.8	210	2370	2240	1110	888	2860	7.4	1
50N082W06AC	1	Q QA	26	10-30-62	10.0	--	--	22	5.2	5.7	--	96	0	10	.0	--	--	--	106	--	77	0	174	7.3	1

See footnotes at end of table.

Table 2.--Chemical analyses of water from wells and springs in the Powder River Basin and adjacent areas, northeastern Wyoming--Continued

WELL NUMBER	AQUIFER	WELL DEPTH (FT.)	DATE OF SAMPLE	TEMP-ERATURE (DEG C)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DISS-OLVED SOLIDS (RESI-DUE AT 180 C)	DISS-OLVED SOLIDS (SUM OF CONSTI-TUENTS)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	SOURCE OF DATA
NATRONA COUNTY																								
33N077W15BCB 1	M MA	7615	04-18-67	--	40	4800	338	55	452	58	124	0	1560	322	5.0	1.1	710	3040	2900	1070	968	3660	7.4	1
39N078W26CD 1	M MA	7180	08-11-67	88.0	62	200	307	40	738	73	133	0	900	1050	5.0	.2	650	3290	3240	932	823	4940	7.5	1
40N079W26CAA 1	M MA	4889	11-18-66	98.0	47	580	366	28	492	36	112	0	1120	619	3.2	.2	510	2860	2770	1030	938	3980	7.5	1
40N079W35CCC 1	M MA	4968	10-26-62	--	--	--	328	60	469	--	98	--	1060	640	--	--	--	2770	2600	--	--	--	7.3	6
39N083W18CAD 1	G TE	1540	10-19-65	16.0	14	50	124	24	16	2.7	122	0	311	7.2	.6	2.3	40	603	562	407	307	809	7.9	1
40N079W25CAA 1	G TE	4400	11-18-66	71.0	42	290	315	67	561	41	125	0	1130	698	5.5	.1	460	3040	2920	1060	958	4280	7.6	1
40N083W19CCA 1	G TE	0	09-09-66	14.0	11	20	62	28	5.5	1.6	182	0	126	2.0	.2	2.0	30	338	328	268	119	520	7.7	1
39N083W07AAB 1	R CH	0	08-21-66	9.0	11	60	188	67	108	4.3	210	0	789	5.7	.3	4.2	210	1330	1280	744	572	1570	7.9	1
39N083W05AAD 1	J3SD	0	09-09-66	7.0	13	70	55	36	40	2.5	236	0	156	4.7	.3	8.9	60	416	433	283	89	671	8.1	1
39N084W03BBC 1	J3MO	0	09-09-66	9.0	12	60	205	73	173	4.3	342	0	879	5.7	.4	.1	190	1610	1520	810	530	1920	7.9	1
33N079W24ACC 1	K1CL	5101	03-23-67	31.0	27	50	1.0	.0	149	.3	278	0	74	6.7	.7	.0	70	402	396	2	0	538	8.0	1
34N080W21CAD 1	K1CL	3100	12-21-66	35.0	20	70	.0	.2	112	.2	253	8	12	3.2	2.5	.0	1400	278	284	1	0	453	8.5	1
37N082W36DDD 1	K1CL	1275	02-02-67	11.0	19	120	9.8	1.3	600	1.3	351	0	958	18	.7	.2	380	1770	1780	30	0	2540	8.2	1
39N083W13BDD 1	K1MO	117	02-02-67	9.0	22	620	36	9.7	196	1.7	141	0	424	1.9	1.3	.5	370	780	763	130	14	1140	7.3	1
33N080W06CBC 2	K3FR	204	12-06-66	23.0	8.8	1900	42	21	963	2.4	688	8	1620	12	.7	.2	1100	3030	3020	192	0	4110	8.3	1
33N080W08AAD 1	K3FR	147	06-13-67	18.0	9.0	30	4.4	1.0	984	2.8	1750	9	425	149	12	.0	3100	2330	2460	15	0	3670	8.3	1
34N080W32CBC 2	K3FR	735	05-25-67	10.0	6.4	360	.4	.6	752	1.3	1440	28	64	208	7.3	.0	1900	1790	1780	4	0	2830	8.5	1
37N082W36BBB 1	K3FR	925	02-02-67	11.0	19	480	2.9	.7	461	1.2	442	12	487	73	2.0	1.2	1100	1310	1280	10	0	2000	8.6	1
39N079W11DD 1	K3FR	2069	03-22-67	--	16	470	2.0	1.8	1040	2.4	2220	0	.0	243	13	.6	1800	2360	2410	12	0	3530	8.1	1
39N082W09CBC 1	K3FR	1030	02-02-67	13.0	9.8	210	2.7	1.3	766	1.2	350	20	1280	12	.9	.2	370	2290	2270	12	0	3230	8.7	1
40N080W27BA 1	K3FR	1150	07-13-67	22.0	19	80	1.2	.0	352	.6	391	90	286	4.6	1.0	3.3	270	940	950	3	0	1460	8.9	1
40N081W20CAD 1	K3FR	1029	02-02-67	13.0	11	380	14	11	703	1.7	728	19	884	21	3.5	.6	1500	2040	2030	82	0	2930	8.6	1
33N079W33BBA 1	K3CO	100	09-19-67	11.0	11	430	145	80	600	3.3	481	0	1470	75	4.0	6.6	930	2720	2630	690	296	3470	7.8	1
34N079W17DBA 1	K3CO	405	06-12-67	13.0	8.1	80	14	3.8	1260	4.0	509	0	2130	46	1.0	.3	420	3590	3720	50	0	4840	7.8	1
37N078W07DCD 1	K3MV	1796	08-24-67	22.0	10	110	15	1.2	712	2.3	419	3	1150	15	.9	.1	180	2180	2120	44	0	3080	8.3	1
37N079W19DDA 1	K3MV	210	08-15-66	12.0	22	20000	82	48	310	7.4	40	0	995	5.5	.2	.1	80	1480	1510	400	367	1950	6.7	1
37N079W30DCD 1	K3MV	511	08-17-66	13.0	1.8	2000	.2	2.3	141	.8	235	17	89	3.7	.3	.1	150	370	374	10	0	625	8.9	1
38N079W34BDA 1	K3MV	100	04-26-66	12.0	10	350	146	46	1100	9.2	662	0	2040	73	2.5	153	400	3980	3910	554	11	5000	7.5	1
40N078W11ACB 1	6/K3FH	950	05-14-63	13.0	7.4	20	29	2.3	374	C	451	0	483	13	1.4	1.7	--	1170	1130	82	0	1700	8.0	1
40N078W11ACB 1	6/K3FH	950	05-24-63	13.0	65	370	30	1.5	378	C	431	20	475	12	1.4	.6	--	1240	1200	81	0	1740	8.6	1
40N078W11ACB 1	6/K3FH	950	09-09-65	--	--	1000	14	15	360	4.0	387	0	517	.6	--	.0	200	1180	--	--	--	1700	7.7	4
40N078W11DBA 2	6/K3FH	733	08-12-65	--	--	260	8.0	3.0	420	5.0	402	12	513	13	.9	.6	180	1170	--	--	--	1790	8.4	4
40N078W26CBA 1	K3FH	90	07-13-67	16.0	7.9	50	20	1.0	655	2.0	466	0	1070	12	.8	.9	320	1980	2000	54	0	2850	7.9	1
34N077W09BCC 1	K3LN	90	11-10-65	10.0	15	0	174	97	78	9.2	305	0	712	37	.7	.0	40	1380	1270	834	584	1710	7.8	1
36N077W05BBB 1	K3LN	496	- -	12.0	--	--	--	--	576	C	575	59	635	16	--	--	--	1530	1570	--	--	2600	--	5
40N078W11DBA2	K3LN	240	08-12-65	--	--	--	17	3.0	374	3.0	464	--	456	12	--	--	--	1090	--	--	--	--	8.5	6
33N077W03BDC 1	Q OA	20	08-25-67	12.0	14	200	140	44	250	3.7	328	0	738	32	.7	.0	100	1430	1380	530	261	1900	7.7	1
33N079W18BAB 1	Q OA	38	08-10-67	12.0	13	--	82	21	57	4.6	210	0	206	16	.5	10	70	506	513	290	118	786	7.6	1
33N081W33DDA 1	Q OA	42	06-14-66	14.0	13	100	412	735	1140	13	563	0	5320	119	1.1	207	700	9300	8240	4050	3590	8280	7.8	1
34N079W36DBB 1	Q OA	37	07-18-61	--	--	--	97	29	77	--	244	--	273	32	--	--	--	634	628	362	--	--	7.5	6
34N080W29ADD 1	Q OA	0	06-13-67	12.0	15	40	223	195	411	7.1	389	0	1510	295	1.0	8.1	740	3010	2860	1360	1040	3590	7.7	1
34N080W30ADD 1	Q OA	11	06-13-67	12.0	26	60	139	82	151	11	426	0	596	44	2.8	31	510	1330	1290	682	333	1740	7.6	1
34N081W23DDD 3	Q OA	48	05-24-67	11.0	19	70	469	197	1330	20	597	0	4050	200	4.3	24	1200	6750	6610	1980	1490	7180	7.4	1
NIOBRARA COUNTY																								
34N064W09DB 1	K1IK	145	12-04-59	8.0	9.8	10	53	6.8	56	11	274	0	55	10	.3	13	70	351	350	160	0	565	7.5	1
34N065W01BC 1	K1IK	265	10-13-59	--	9.6	30	21	2.3	57	6.6	210	0	15	2.8	.5	.1	50	218	218	62	0	368	7.4	1
35N065W15AD 1	K3PI	80	12-03-59	--	29	10	61	18	123	11	344	0	203	15	.4	1.9	140	644	631	224	0	950	7.6	1
37N063W13CB 1	K3FH	300	12-01-59	--	12	200	46	37	325	4.1	528	0	543	9.0	.2	5.9	270	1240	1240	268	0	1800	7.7	1
38N062W17AA 1	K3FH	110	12-01-59	7.0	8.0	0	14	3.2	1040	2.9	380	0	1970	23	.6	.2	480	3290	3250	48	0	4440	7.8	1
38N063W23DC 1	K3FH	105	12-01-59	6.0	9.8	140	37	13	598	4.5	380	0	1120	11	.3	2.6	310	2000	1980	144	0	2780	7.7	1
36N065W14DA 1	K3LN	73	12-02-59	--	15	30	89	30	221	12	384	0	393	80	.5	.4	230	1040	1030	347	32	1540	7.5	1
37N065W07BB 1	K3LN	128	12-02-59	12.0	6.7	8600	12	1.5	432	1.7	515	0	523	6.7	1.5	6.9	180	1250	1250	36	0	1880	7.8	1
38N063W30CC 1	K3LN	70	12-01-59	--	22	330	99	32	301	7.6	548	0	553	9.9	.8	.8	100	1310	1300	379	0	1840	7.4	1
39N065W21CC 1	K3LN	280	12-01-59	7.0	17	10	47	3.5	922	4.0	676	0	1500	15	.2	13	140	2900	2850	132	0	3940	7.6	1
39N065W21DC 1	K3LN	250	12-01-59	--	20	40	29	11	574	3.1	666	0	752	7.4	.4	7.3	120	1740	1730	116	0	2470	7.6	1
40N063W33BB 1	K3LN	400	12-01-59	--	9.9	70	4.5	.2	596	2.0	1370	0	.3	110	5.4	.2	620	1430	1400	12	0	2270	7.8	1
40N064W01AA 1	K3LN	112	12-01-59	7.0	9.5	20	13	2.6	675	2.3	1050	0	611	6.5	.7	5.1	170	1870	1840	43	0	2720	7.7	1
36N066W15BA 1	TLFU	275	12-02-59	8.0	7.6	420	14	4.9	486	3.5	558	0	583	3.7	.8	8.7	130	1400	1390	55	0	2070	7.6	1
37N066W10CC 1	TLFU	290	12-02-59	--	11	130	136	88	474	6.4	744	0	1050	18	.9	2.9	150	2190	2150	701	91	2900	7.0	1

See footnotes at end of table.

Table 2.--Chemical analyses of water from wells and springs in the Powder River Basin and adjacent areas, northeastern Wyoming--Continued

WELL NUMBER	AQUIFER	WELL DEPTH (FT.)	DATE OF SAMPLE	TEMPERATURE (DEG C)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	SOURCE OF DATA
NIOBRARA COUNTY--Continued																								
38N066W04AD 1	TLFU	213	12-02-59	13.0	9.5	6900	4.5	1.2	456	3.8	398	37	562	20	.7	2.7	60	1310	1300	16	0	1970	8.6	1
39N066W10AA 1	TLFU	132	12-01-59	2.0	12	680	151	73	333	8.2	806	0	775	8.8	.0	11	90	1780	1770	676	15	2380	7.6	1
34N061W06CD 1	TOWR	9	09-14-57	14.0	54	3300	8.5	.2	121	9.6	307	0	25	12	1.2	3.9	120	383	387	22	0	553	8.0	1
34N061W17CA 1	TOWR	50	10-02-57	--	60	10	73	2.9	62	26	268	0	44	57	.4	22	80	491	479	194	0	720	7.7	1
34N065W04CB 1	TOWR	300	10-12-59	13.0	9.2	110	3.2	.0	131	3.4	318	0	2.0	9.8	5.0	.1	370	324	320	8	0	536	7.7	1
35N062W15AC 1	TOWR	105	09-11-57	--	49	60	6.5	.2	167	10	360	0	40	33	1.9	10	280	500	495	17	0	746	8.0	1
35N064W26CA 1	TOWR	126	12-04-59	--	31	5700	26	3.6	124	11	386	0	25	11	.6	.4	60	428	428	80	0	670	7.4	1
34N062W29CD 1	TMAR	80	11-14-57	11.0	60	50	51	10	8.9	7.5	218	0	10	4.0	.3	3.8	30	261	263	169	0	371	7.7	1
35N060W27BA 1	Q OA	15	11-12-59	--	29	3100	94	22	176	17	429	0	348	14	.4	.5	230	922	915	326	0	1330	7.1	1
35N065W03CC 1	Q OA	11	11-11-59	--	22	2700	102	31	230	15	419	0	495	19	.5	.4	290	1140	1120	382	38	1610	7.1	1
38N063W30CD 2	Q OA	46	12-01-59	--	20	300	60	25	306	7.7	533	0	454	11	1.0	.4	100	1160	1150	253	0	1680	7.6	1
40N064W01DC 1	Q OA	21	12-01-59	5.0	7.7	1900	37	42	527	10	340	0	1080	21	.7	3.5	110	1920	1900	264	0	2670	7.5	1
SHERIDAN COUNTY																								
55N089W01DA 1	C2FL	66	10-25-60	6.0	6.8	190	30	7.8	2.0	.2	128	0	3.0	.0	.1	2.4	40	124	115	107	2	220	7.2	1
57N087W21DB 1	7/G TE	1596	10-25-60	10.0	8.0	580	50	19	.5	.6	246	0	5.0	.0	.2	.8	20	202	205	204	2	380	7.7	1
56N086W07DC 1	K3FR	148	07-27-61	--	10	20	47	14	74	1.0	277	0	104	1.7	.3	3.2	530	390	392	174	0	638	8.1	1
57N086W30AC 1	K3MV	115	10-25-60	9.0	13	1300	97	40	29	2.0	330	0	186	1.6	.4	.0	120	550	531	407	136	823	7.8	1
58N087W35CA 2	K3LE	129	10-25-60	9.0	38	440	16	2.9	236	.1	337	0	233	30	.2	1.0	60	739	723	52	0	1110	7.9	1
57N086W34BB 1	K3LN	315	08-28-61	12.0	8.4	130	33	18	404	5.3	592	0	493	42	.3	.3	120	1320	1300	155	0	1980	8.0	1
57N087W01BD 1	K3LN	195	08-28-61	11.0	9.7	20	5.6	1.0	150	.8	191	7	157	8.1	.6	.2	130	450	434	18	0	712	8.5	1
53N077W10CD 2	TLFU	424	10-26-60	19.0	12	470	22	7.8	620	7.4	1710	0	1.3	24	.7	.1	110	1560	1540	87	0	2420	8.0	1
54N076W05AC 1	TLFU	710	08-29-61	18.0	12	720	19	3.5	524	6.0	1430	0	.3	16	.7	.0	70	1340	1290	62	0	1990	8.0	1
54N077W05DB 1	TLFU	1185	08-30-61	17.0	13	80	5.9	2.1	400	5.3	1040	23	.3	17	.9	.0	150	1020	981	23	0	1570	8.3	1
54N077W09CB 1	TLFU	743	10-26-60	15.0	10	910	18	3.4	537	4.3	1450	0	.4	17	.7	.0	80	1340	1300	59	0	2090	8.1	1
55N077W28AD 1	TLFU	380	03-07-62	13.0	9.0	210	4.6	.8	219	1.8	553	10	1.2	14	1.2	--	--	530	--	15	0	863	8.4	1
55N077W28DD 1	TLFU	500	03-06-62	13.0	9.6	200	12	2.6	374	4.5	1000	0	.8	16	1.6	--	--	915	--	41	0	1440	8.1	1
55N084W16BC 1	TLFU	370	08-30-61	12.0	8.6	3200	62	30	134	8.8	499	0	136	13	.4	13	80	690	651	279	0	1050	7.6	1
55N084W27CB 1	TLFU	560	06-14-62	14.0	8.7	190	28	8.3	141	6.5	454	0	30	7.0	.6	--	--	484	--	104	0	746	7.9	1
56N078W22AC 1	TLFU	165	08-30-61	15.0	9.2	140	7.3	2.9	400	3.5	1110	0	2.3	7.4	2.2	.0	150	1010	981	30	0	1570	8.2	1
56N085W03AD 1	TLFU	123	07-27-61	10.0	9.2	910	43	28	449	7.6	510	0	708	53	.4	1.0	160	1590	1550	222	0	2360	7.7	1
57N076W20BD 1	TLFU	265	10-26-60	11.0	9.1	880	12	2.2	555	4.4	1480	0	2.0	21	1.4	.0	120	1340	1340	39	0	2080	8.2	1
57N083W03AB 1	TLFU	120	03-08-62	9.0	8.2	190	8.4	2.8	490	4.7	1320	0	.2	7.6	1.9	--	--	1160	--	32	0	1790	8.1	1
57N084W19BD 1	TLFU	126	03-06-62	9.0	9.8	100	31	29	810	17	2370	0	55	23	2.1	--	--	1900	--	196	0	3180	7.6	1
57N085W19AA 1	TLFU	180	03-06-62	9.0	8.2	140	14	5.2	360	4.2	941	0	.4	57	1.8	--	--	888	--	56	0	1460	8.2	1
57N085W30BA 1	TLFU	488	08-03-46	--	7.9	170	37	24	611	C	429	0	1010	82	.6	.0	--	--	1980	191	0	2880	7.3	1
53N082W30AA 1	TLFU	480	10-25-60	12.0	11	310	8.6	3.5	750	6.5	2010	0	1.3	9.9	2.2	.0	130	1800	1780	36	0	2740	8.0	1
58N084W29CA 1	TLFU	620	03-08-62	12.0	9.4	150	9.9	17	943	12	1840	0	645	10	1.9	--	--	2380	--	96	0	3620	7.8	1
58N084W29CDD 1	TLFU	1260	03-08-62	12.0	12	580	3.2	2.7	335	1.8	840	16	.0	13	4.0	--	--	742	--	19	0	1250	8.3	1
53N079W07BC 1	TEWA	280	05-07-62	6.0	8.1	80	6.0	2.4	252	2.2	657	9	1.8	18	1.4	--	--	613	--	25	0	1010	8.4	1
53N080W02DB 1	TEWA	260	03-07-62	12.0	10	410	317	282	342	9.8	591	0	1990	9.0	.7	--	--	3410	--	1960	1470	3680	7.3	1
53N080W18CA 2	TEWA	143	08-30-61	17.0	8.2	50	4.7	1.8	227	1.8	500	0	90	12	1.1	8.0	80	638	601	19	0	1000	7.9	1
53N082W11CD 1	TEWA	143	03-22-62	9.0	8.2	240	15	4.6	378	3.1	1060	0	5.4	2.0	1.0	--	--	920	--	57	0	1480	8.0	1
53N083W07DD 1	TEWA	42	08-28-61	14.0	13	10	34	11	2.3	1.0	156	0	1.3	.3	.1	.5	10	160	141	129	1	248	7.9	1
54N079W21BDD 1	TEWA	121	10-26-60	11.0	8.8	260	20	5.1	317	1.9	728	0	145	2.8	.9	.1	110	890	860	71	0	1400	8.1	1
54N080W24DC 1	TEWA	120	03-22-62	13.0	30	8100	457	403	450	26	627	0	3010	8.0	.8	--	--	4950	--	2800	2280	4910	7.6	1
54N081W14BC 1	TEWA	110	07-25-61	11.0	11	10	46	3.2	379	4.2	966	0	157	2.8	.4	16	70	1110	1090	128	0	1720	8.0	1
54N082W29BA 1	TEWA	60	06-13-62	10.0	21	3700	136	36	49	7.2	524	0	157	.6	.4	--	--	672	--	490	60	1010	7.3	1
54N083W03BA 1	TEWA	245	06-13-62	13.0	11	1200	108	34	567	9.5	665	0	1020	6.4	.0	--	--	2090	--	408	0	2910	7.5	1
54N083W07AC 1	TEWA	100	03-08-62	9.0	9.1	30	3.0	.0	155	.9	345	17	26	1.0	.6	--	--	376	--	8	0	612	8.7	1
54N084W11AB 1	TEWA	160	10-28-60	11.0	14	240	86	62	22	2.4	528	0	64	2.0	.3	19	180	529	532	470	37	874	7.6	1
55N079W30BBA 1	TEWA	140	10-26-60	9.0	9.0	930	157	77	822	12	680	0	1930	6.2	.3	38	280	3480	3390	709	151	4350	7.6	1
55N079W30BBA 2	TEWA	200	10-26-60	13.0	8.9	410	8.3	2.3	336	4.6	890	0	2.8	11	.8	7.9	120	830	821	30	0	1320	7.7	1
55N081W02BC 1	TEWA	0	06-14-62	12.0	31	30	67	10	3.4	2.9	168	0	37	7.0	.6	--	--	281	--	209	72	432	7.7	1
55N082W05DC 1	TEWA	155	03-07-62	9.0	9.6	90	13	2.6	405	3.4	1100	0	.6	11	.8	--	--	897	--	43	0	1540	8.1	1
56N081W29BD 1	TEWA	378	10-28-60	11.0	10	120	3.2	.5	243	1.2	484	0	118	5.7	1.8	5.6	120	628	627	10	0	994	8.2	1
56N082W35AA 1	TEWA	87	06-13-62	14.0	7.1	25000	470	519	800	13	801	0	4080	45	.7	--	--	6620	--	3310	2650	6620	7.4	1
57N079W25CC 1	TEWA	95	08-30-61	18.0	5.7	40	220	136	1140	12	574	0	3110	7.4	.2	1.0	190	5080	4920	1110	639	5880	7.8	1
57N080W31BB 1	TEWA	160	08-29-61	11.0	11	120	106	9.6	816	6.2	473	0	1690	8.5	.4	.8	110	2960	2880	304	0	3920	8.1	1
57N081W07CB 1	TEWA	510	03-08-62	4.0	9.1	140	6.0	1.8	350	2.8	918	0	3.0	16	1.8	--	--	834	--	22	0	1320	8.2	1
53N080W18CA 1	Q OA	23	08-30-61	13.0	19	270	201	124	181	13	541	0	883	8.7	.2	.0	320	1860	1700	1010	566	2250	7.6	1
54N084W14BB 1	Q OA	65	06-14-62	13.0	12	80	72	18	12	1.2	324	0	8.0	.0	.1	--	--	272	--	253	0	487	7.6	1
56N082W34DC 1	Q OA	56	07-21-61	9.0	35	4300	273	136	168	15	613	0	1020	6.1	.5	.1	220	2060	1960	1240	737	2440	7.8	1
57N085W19AB 1	Q OA	30	08-28-61	12.0	12	10	103	58	100	2.3	441	0	329	4.8	.2	1.1	180	844	828	497	135	1220	7.7	1
57N085W29A 1	Q OA	18	08-03-46	11.0	15	60	73	95	60	C	639	0	150	12	.8	4.7	--	746	725	572	49	1160	7.7	1

See footnotes at end of table.

Table 2.--Chemical analyses of water from wells and springs in the Powder River Basin and adjacent areas, northeastern Wyoming--Continued

WELL NUMBER	AQUIFER	WELL DEPTH (FT.)	DATE OF SAMPLE	TEMPERATURE (DEG C)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	SOURCE OF DATA
WESTON COUNTY																								
44N062W02DCA 1	W DE	6227	05-19-69	32.0	25	4800	603	138	150	36	160	0	2100	58	1.6	.0	1200	3340	3200	2070	--	3290	8.1	1
44N060W05BB 2	M1PA	1300	12-10-47	14.0	7.6	--	55	13	37	7.6	300	0	27	2.8	.7	1.8	140	298	300	191	0	504	7.2	1
45N061W20DCA 1	M1PA	2638	01-07-50	--	9.0	--	54	33	6.9	C	--	--	34	5.0	--	--	--	290	--	335	--	--	--	7
45N061W20DCA 1	M1PA	2638	04-01-57	24.0	14	10	64	28	2.8	2.2	290	0	38	2.0	.2	1.9	--	297	296	274	37	504	7.4	1
45N061W20DCA 1	M1PA	2638	03-15-62	26.0	13	30	63	28	2.5	1.6	291	0	38	1.2	.3	.9	30	291	292	274	35	507	7.7	1
45N061W20DCA 1	M1PA	2638	01-28-69	--	--	--	68	25	6.9	91	287	0	45	1.1	--	.3	0	315	--	--	--	519	7.3	4
45N061W21CBD 1	M1PA	2872	01-28-69	--	--	--	76	29	3.2	2.2	276	0	87	1.4	--	.2	30	385	--	--	--	578	7.4	4
45N061W28AB 2	M1PA	2738	03-15-62	26.0	13	70	62	29	2.9	1.8	289	0	37	1.4	.3	.9	10	288	290	273	36	504	7.4	1
45N061W29CBB 1	M1PA	3073	03-15-62	27.0	14	60	76	33	6.1	2.6	257	0	117	2.5	.4	1.0	20	405	379	327	116	642	7.4	1
45N061W30AD 1	M1PA	3028	03-15-62	30.0	14	40	76	32	4.4	2.8	268	0	105	1.8	.4	.9	10	386	369	322	102	601	7.4	1
45N061W30AD 1	M1PA	3028	06-18-68	31.0	13	10	75	33	5.2	2.3	266	2	108	1.6	.5	.8	10	382	372	324	--	603	8.3	1
45N061W30AD 1	M1PA	3028	01-28-69	--	--	--	77	31	3.6	2.5	268	0	114	1.1	--	.3	0	490	--	--	--	602	7.3	4
45N061W33AB 1	M1PA	3596	06-04-69	22.0	13	30	76	26	2.9	2.3	276	0	74	1.2	.6	.2	0	336	332	298	--	534	7.9	1
46N060W31BA 1	M1PA	1178	12-09-47	16.0	11	50	58	9.8	36	6.8	306	0	16	1.8	.5	1.5	100	290	292	185	0	492	7.1	1
46N060W31BA 1	M1PA	1178	10-24-68	16.0	13	40	65	24	2.8	1.5	318	0	12	.4	.3	.7	0	270	276	260	--	473	8.2	1
46N062W18BDC 1	M1PA	2677	06-05-69	16.0	12	30	62	28	1.9	1.4	296	0	27	.8	.3	.0	--	268	279	270	--	480	7.8	1
46N063W10DCA 1	M1PA	2592	05-02-41	--	--	--	76	23	7.0	C	307	--	43	5.0	--	--	--	348	307	--	--	--	--	6
46N063W10DCA 1	M1PA	2592	12-09-47	24.0	5.6	50	70	19	18	2.4	296	0	47	1.2	.6	1.0	70	346	311	252	9	529	7.1	1
46N063W10DCA 1	M1PA	2592	04-08-58	23.0	15	0	80	26	2.6	.6	298	0	69	1.0	.2	.6	--	311	342	306	62	563	7.5	1
46N064W13CC 2	M1PA	4522	05-22-69	37.0	14	310	61	26	1.8	1.4	273	0	29	.7	.4	.5	10	266	269	258	--	484	7.8	1
47N060W04ADA 1	M1PA	380	06-03-69	10.0	12	40	62	23	1.0	.8	291	0	5.2	1.0	.5	.1	0	248	249	250	--	435	7.9	1
48N065W35CCB 1	M1PA	3193	07-11-69	28.0	12	40	93	34	20	1.5	267	0	174	1.5	1.2	.5	20	482	469	374	--	724	7.7	1
44N060W05BB 1	G ME	1010	12-10-47	14.0	5.0	50	474	84	9.7	14	222	0	1310	11	1.8	7.2	--	2190	2020	1530	1350	2230	7.2	1
45N061W02BC 1	G ME	720	12-10-47	14.0	6.0	50	504	14	29	8.4	136	0	1720	3.8	2.4	1.8	--	2760	2480	1840	1730	2680	7.5	1
45N061W02BC 1	G ME	720	06-18-68	15.0	9.2	50	685	37	35	4.8	141	0	1680	9.5	1.2	1.7	280	2810	2530	1860	--	2700	8.0	1
45N061W28AB 1	G ME	1950	03-14-62	23.0	10	620	604	161	29	6.7	127	0	1980	19	.9	2.1	150	3220	2870	2170	2070	3010	7.4	1
47N060W30AAA 1	G ME	425	06-03-69	16.0	12	20	68	24	1.1	1.1	305	0	12	.8	.2	2.4	0	266	272	269	--	463	7.9	1
47N061W01CBC 1	G ME	400	06-03-69	9.0	11	100	83	12	8.4	1.3	304	0	13	1.9	.2	16	0	294	297	257	--	495	7.8	1
47N061W11CBB 1	G ME	410	06-03-69	10.0	9.7	20	70	15	1.6	1.4	254	0	19	1.5	.2	6.9	0	258	250	235	--	432	8.0	1
47N064W12C 1	G ME	1560	- -	--	--	--	723	252	81	C	110	--	2760	36	--	--	--	3910	--	2840	2750	--	--	6
48N060W08CC 1	G ME	0	09-10-69	--	9.2	30	76	8.4	.8	.5	272	0	6.2	.6	.1	.0	0	218	236	224	--	408	7.9	1
48N061W30AA 1	G ME	400	06-05-69	12.0	10	20	150	45	2.8	2.0	233	0	335	1.8	.4	14	60	708	676	559	--	955	8.0	1
46N061W09BD 1	F SP	0	05-14-69	8.0	20	--	910	168	10100	14	272	0	3190	15600	--	--	2000	30000	30140	2960	--	41800	8.1	1
47N062W11AA 1	F SP	140	09-09-69	--	12	20	533	95	111	5.8	188	0	1680	9.0	.9	6.2	400	2760	2540	1720	--	2760	7.7	1
48N062W19DC 1	J3SD	30	09-10-69	8.0	8.8	310	187	112	29	12	463	0	580	14	.3	12	310	1220	1180	928	--	1560	7.7	1
48N062W20DDD 1	J3SD	98	07-09-69	11.0	8.8	1400	393	87	19	7.7	296	0	1080	6.8	.2	.2	120	1870	1750	1340	--	2040	7.5	1
44N062W22CCC 1	K1LA	3832	07-14-69	11.5	26	420	77	19	270	14	162	0	690	13	.6	.1	60	1190	1190	269	--	1660	8.0	1
45N061W29CBA 1	K1LA	830	08-15-41	--	--	--	308	138	128	C	140	--	1410	21	--	--	--	2080	--	1340	1230	--	--	6
45N061W29CBA 2	K1LA	930	12-10-47	16.0	3.0	54000	286	118	59	14	24	0	1250	14	1.8	.0	--	1940	--	1200	1180	2080	5.5	1
46N062W27DC 1	K1LA	300	09-09-69	11.0	9.8	8600	424	248	172	18	376	0	2000	26	.3	.0	420	3300	3090	2080	--	3350	7.8	1
46N063W05DD 1	K1LA	--	02-11-46	16.0	--	--	--	--	415	C	255	--	631	26	--	--	--	--	1240	--	--	--	--	1
46N063W18ADD 1	K1LA	1030	03-14-58	--	--	--	5.0	1.0	486	C	194	--	861	13	--	--	--	1560	--	--	--	--	7.9	6
46N063W18ADD 1	K1LA	1030	06-05-67	19.0	9.3	330	7.6	1.2	475	1.0	171	0	890	12	.8	.3	70	1480	1480	24	0	2130	7.4	1
46N063W18ADD 2	K1LA	1104	08-19-60	--	--	--	3.0	--	281	C	220	--	403	14	--	--	--	832	--	--	--	--	7.6	6
46N063W19BD 1	K1LA	1645	01-22-46	19.0	--	--	--	--	810	C	185	--	1510	25	--	--	--	--	2380	--	--	--	--	1
46N063W20BD 1	K1LA	1775	02-11-46	17.0	--	--	--	--	336	C	220	--	508	19	--	--	--	986	--	--	--	--	--	1
46N063W21AA 1	K1LA	1500	02-11-46	14.0	--	--	--	--	488	C	205	--	703	114	--	--	--	--	1210	--	--	--	--	1
46N064W11DB 1	K1LA	1800	08-19-60	--	--	--	8.0	--	688	C	183	--	1270	32	--	--	--	2100	--	--	--	--	8.1	6
46N064W13CCA 1	K1LA	1927	08-19-60	--	--	--	3.0	--	225	C	195	--	307	12	--	--	--	653	--	--	--	--	7.7	6
46N064W24ADA 1	K1LA	1852	01-22-46	25.0	--	--	--	--	263	C	220	--	362	10	--	--	--	734	--	--	--	--	--	1
46N064W24ADA 1	K1LA	1852	06-05-67	23.0	11	780	.0	.0	250	.5	207	0	361	7.1	.6	.6	60	742	734	0	0	1130	7.7	1
46N064W26BBB 1	K1LA	2560	01-22-46	25.0	--	--	--	--	279	C	205	--	401	15	--	--	--	787	--	--	--	--	--	1
46N063W31B 1	K1FR	1900	01-22-46	27.0	--	--	--	--	652	C	205	--	1160	29	--	--	--	--	1920	--	--	--	--	1
48N066W01CCC 1	K1FR	822	07-11-69	15.0	8.2	60	.4	.5	244	.4	262	0	279	16	.6	.1	60	686	678	3	--	1090	8.2	1
41N060W07DBB 1	K1IK	530	05-14-69	14.0	8.1	230	21	11	365	3.3	200	8	660	13	.3	.0	90	1220	1190	98	--	1920	8.4	1
41N060W17AAD 1	K1IK	415	05-14-69	15.0	8.1	180	22	7.5	330	4.1	183	12	570	10	.3	.7	60	1080	1050	86	--	1630	8.6	1
41N061W01ACC 1	K1IK	665	05-14-69	9.0	8.6	150	3.1	2.8	330	2.1	251	10	454	22	.5	.0	70	980	956	19	--	1480	8.7	1
42N060W07CB 1	K1IK	1469	05-14-69	26.0	11	17000	234	66	150	9.4	153	0	985	18	.4	.0	70	1690	1570	855	--	2540	8.1	1
44N063W09CAD 1	K1IK	4610	07-12-69	52.0	32	220	2.1	.2	400	1.7	194	0	655	14	.7	.2	70	1190	1200	6	--	1750	7.9	1
44N064W27ACC 1	K1IK	5331	07-15-69	50.0	39	530	.8	1.2	405	2.1	472	0	382	58	2.8	.1	560	1100	1120	7	--	1700	8.2	1

Table 2.--Chemical analyses of water from wells and springs in the Powder River Basin and adjacent areas, northeastern Wyoming--Continued

WELL NUMBER	AQUIFER	WELL DEPTH (FT.)	DATE OF SAMPLE	TEMP-ERATURE (DEG C)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DISS-OLVED SOLIDS (RESI-DUE AT 180 C)	DISS-OLVED SOLIDS (SUM OF CONSTI-TUENTS)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	SOURCE OF DATA
WESTON COUNTY--Continued																								
45N062W22CCC 1	K1IK	3450	05-19-69	32.0	20	5100	243	77	83	19	144	0	979	3.6	.2	.0	10	1540	1490	923	--	1780	7.7	1
45N063W04CAC 1	K1IK	1800	05-22-69	24.0	12	200	2.5	1.5	304	1.4	197	0	456	8.8	.1	.2	30	898	884	12	--	1360	7.8	1
47N063W31CDA 1	K1IK	800	05-22-69	18.0	10	2200	47	20	740	3.8	144	0	1610	11	.5	.2	170	2470	2510	198	--	3360	7.7	1
47N064W31BB 1	K1IK	3850	10-23-68	19.0	13	960	2.4	.2	400	1.2	251	0	615	17	.3	.3	40	1200	1170	7	--	1780	8.1	1
48N063W30BD 1	K1IK	700	09-10-69	11.0	11	2000	62	26	12	5.0	128	0	171	36	.6	.0	60	358	356	260	--	555	7.0	1
42N062W30AA 1	K3FH	210	09-12-69	12.0	14	1800	50	37	315	3.7	556	0	460	11	.4	.2	3340	1170	1160	277	--	1730	8.2	1
42N065W06CAA 1	K3FH	2259	07-12-69	25.0	11	30	3.8	.6	350	1.0	559	0	288	11	2.5	.2	210	952	943	12	--	1490	8.1	1
43N065W11AC 1	6/K3FH	1608	07-14-69	21.0	11	40	.6	.8	325	.8	525	0	238	8.0	2.0	.1	240	842	844	5	--	1310	7.4	1
46N064W20BB 1	K3FH	200	10-23-68	--	12	4900	67	36	82	4.2	371	0	182	8.5	.2	.0	110	582	579	316	--	875	8.0	1
48N068W26BAB 1	K3FH	2250	07-17-69	25.0	12	60	1.5	.8	330	1.0	419	26	310	11	.9	.0	380	928	900	7	--	1400	9.0	1
41N063W15AA 1	K3LN	180	09-12-69	--	12	300	11	.8	712	2.0	994	11	705	9.0	.6	3.2	210	1910	1960	31	--	2800	8.4	1
42N064W09CAD 1	K3LN	198	09-10-69	12.0	11	70	106	53	38	2.3	384	0	210	5.0	.2	14	40	662	629	482	--	972	8.2	1
42N065W30BCA 1	K3LN	114	09-09-69	12.0	9.0	170	70	28	132	1.9	436	4	184	13	.4	13	70	660	670	292	--	1010	8.3	1
47N066W02CCB 1	K3LN	240	07-15-69	12.0	7.6	40	7.1	4.7	227	1.9	487	9	92	1.7	.3	1.1	230	580	592	37	--	951	8.5	1
47N067W02BAA 1	K3LN	160	07-15-69	11.0	8.3	60	13	6.0	445	2.3	454	0	635	4.0	.1	.2	150	1350	1340	57	--	2020	8.2	1
42N067W14ACB 1	TLFU	161	09-08-69	12.0	7.0	170	4.8	4.4	385	1.9	937	9	33	30	2.2	3.0	70	936	942	30	--	1510	8.3	1
43N066W29CA 1	TLFU	352	09-09-69	14.0	6.5	40	25	6.7	720	2.8	376	0	1240	27	1.3	.2	80	2210	2210	90	--	3100	7.9	1

1/ Some water also from alluvium.
2/ Some water also from Fort Union Formation.
3/ Some water also from Opeche Shale.
4/ Some water also from Sundance Formation.
5/ Some water also from Goose Egg Formation.
6/ Some water also from Lance Formation.
7/ Some water also from Amsden Formation.

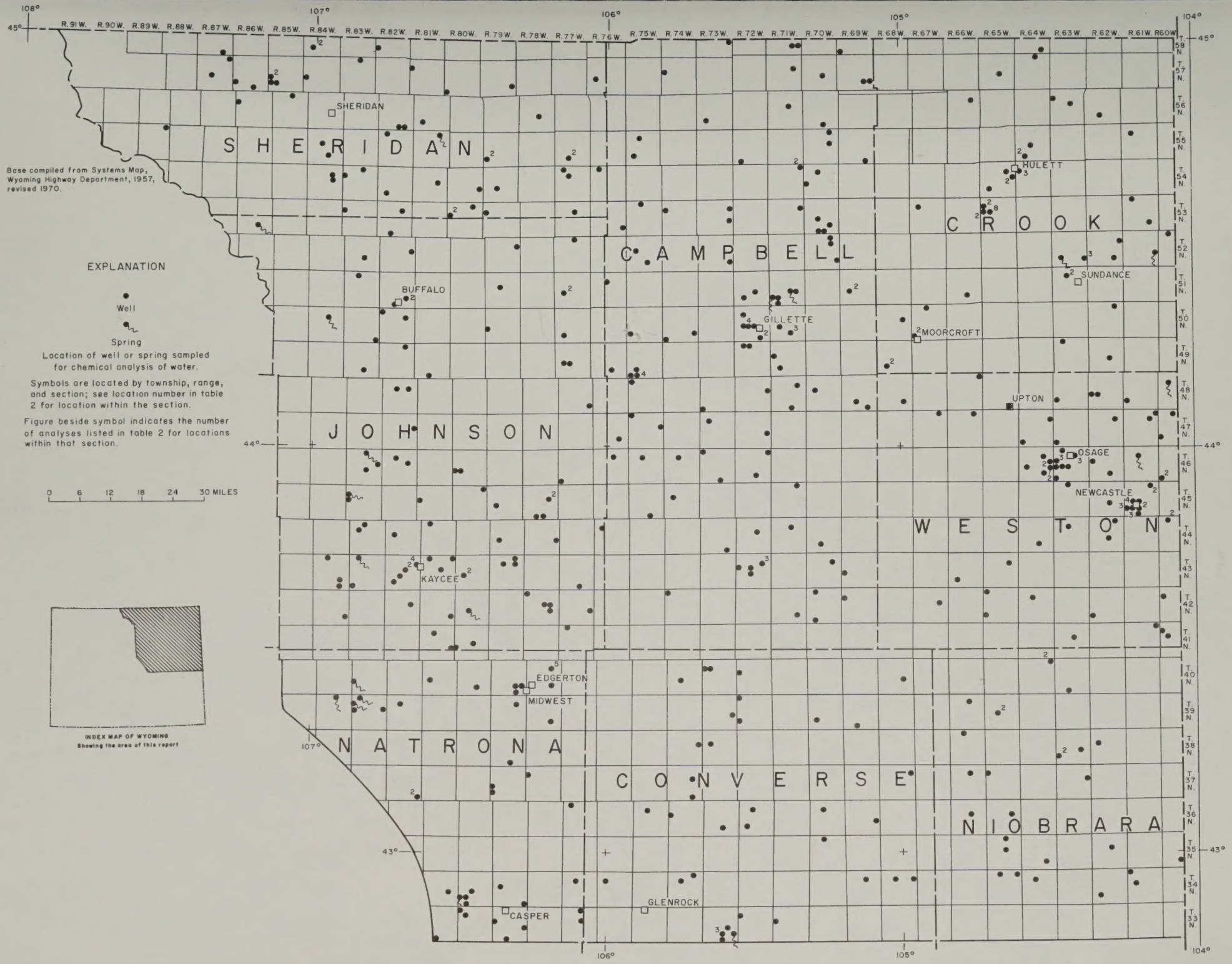


Figure 1.--Locations of wells and springs sampled for chemical analysis of water in the Powder River Basin and adjacent areas, northeastern Wyoming

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